MOTOR
INFORMATION SYSTEMS

RACED

GUIDE TO ESTIMATING

GENERAL INFORMATION

INDUSTRY DEFINITIONS

SPECIAL PRECAUTIONS

LABOR PROCEDURES

MOLDINGS, STRIPE TAPE & DRILL TIMES

REFINISHING PROCEDURES

MOTOR
Collision Estimating Data
1-800-4A-MOTOR
(1-800-426-6867)

Text Explanation Guide

Side of Application
R=Right
L=Left
B=Both
Right or Left

Price Status
D=Discontinued
C=Part price is less core charge
A=Special marketing program

O.E.M. Part Price

Component Classification:
s = structural
m = mechanical

R&R Operation Time

R&R = R&I Indicator

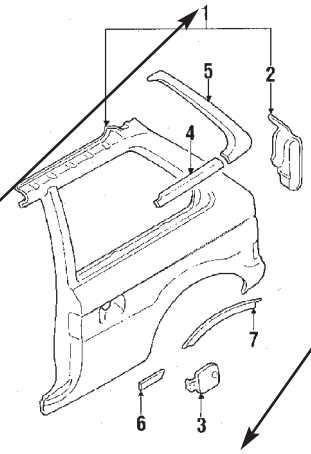
O.E.M. Part Number

Part Description

Year Coverage

Tie rod end .....08-11 R D 25.96 m 0.7 = 22348963

QUARTER PANEL



REFINISHING NOTES

Add for stone guard if required. See Guide to Estimating.

Refn quarter panel
exterior surface only 08-11 **p1.7**
edges &
pockets 08-11 **p.3**
lock pillar 08-11 **p.5**

OVERLAP OPERATIONS

R&R quarter panel
with roof off
deduct . . . . . 08-11 B **4.0**

R&I OPERATIONS

R&I trim panel . . . 08-11 B **0.4**

SECTIONING OPERATIONS

Sctn qtr panel
cut in window opening
08-11 R **p2.5** **11.0**
08-11 L **p2.5** **11.5**

PARTS AND R&R OPERATIONS

QUARTER PANEL & COMPONENTS

1 Outer panel	(p 2.5)	08-11 R	**199.98**	**14.0**		75142 8990
	(p 2.5)	08-11 L	**199.98**	**14.5**		75144 1000
2 Lower pillar	(p .5)	08-11 R	**54.48**	**3.5**		75143 4360
	(p .5)	08-11 L	**54.48**	**3.5**		75143 4370
3 Fuel door	(p .5)	08-11	**17.00**	**0.3**	=	75760 1050
Belt Molding						
4 at window		08-11 R	**33.25**	**0.3**	=	79106 7000
		08-11 L	**33.42**	**0.3**	=	79106 7010
Molding						
5 rear vertical		08-11 R	**A 23.03**	**0.3**	=	79104 7800
		08-11 L	**A 23.03**	**0.3**	=	79104 7810
6 Body side mldg		08-11 R	**37.63 #**	**0.3**		79116 1360
		08-11 L	**37.63 #**	**0.3**		79116 1370
7 Wheel opng mldg	(d .2)	08-11 R	**53.80**	**0.3**	=	79116 5080
	(d .2)	08-11 L	**53.80**	**0.3**	=	79116 5090

 # PARTS: Order by model & color.
¶ LABOR: Time includes R&I quarter glass.

Primary Group Heading

Additional Refinishing Information

Illustrated Part Call-Out Number

R&I Operations

Basic Sub-Group

Manufacturer's Special Marketing Designation (see "PARTS PRICES"– General Information page)

Paint Operation Time

R&R = R&I Indicator (see "R&I (Remove & Reinstall" – Industry Definition page)

Footnote Symbol & Definition

Drilling Operation Time

Operation times reported herein are compiled from available manufacturer data, as well as our own evaluation of shop data and are published only as an estimating guide.

This Guide to Estimating provides the guidelines that apply to MOTOR Crash Estimating Data. Knowledge and application of these guidelines will assist the estimator in developing a clear estimate, reflecting as accurately as possible the requirements to perform operations listed. To maintain accuracy, estimators must frequently refer to these pages throughout the estimating process.

BOLTED-ON PARTS

The phrase "BOLTED-ON PARTS" referenced in this publication are mechanically fastened parts such as braces, brackets, mounts, shields, extensions, etc.

ESTIMATING SEQUENCE

Listed under each basic assembly are the related and component parts. List the damage according to the basic assembly, taking the basic item first. Then, starting from the outside of the vehicle and working inward, list everything attached to it which is damaged. By following this procedure, you will make a more thorough inspection.

For instance, on an estimate involving front fender damage, inspect as shown:

Fender
- molding
- nameplate
- emblem

Fender Liner

FOOTNOTES

Footnotes are used to present information specific to the indicated component or operation. Footnotes are not intended to be used in place of service repair information.

PART ILLUSTRATIONS

All illustrations contained in this guide are typical only. They may show more or fewer included parts than what you'll receive from your parts source. These illustrations are general in nature and do not necessarily represent splicing areas on welded replacement sections.

PART PRICES

This guide does not list parts assembly prices. This is a labor times estimating guide only. The user of this guide must contact his or her dealer to obtain the best price, availability and condition of the replacement part. Once this has been determined, then the desired parts price markup must be figured and entered on the estimate.

TECHNICAL INFORMATION

Labor times shown in reference to labor procedures contained in Tech-Cor Bulletins are researched and developed by MOTOR. While Tech-Cor Bulletins are protected under copyright laws, reproduction of these bulletins is permitted as long as the bulletin is reproduced in its entirety, including source attribution.

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I-CAR

Created by the collision industry in 1979, I-CAR, the Inter-Industry Conference on Auto Collision Repair, conducts extensive collision repair research to develop and deliver quality technical educational programs to professionals in the insurance and collision repair industries, which increases the common understanding of required repair methods. The international not-for-profit training organization works towards its vision that every person in the collision industry has the necessary technical knowledge and skills relevant to their position to achieve a complete and safe repair. Ultimately benefiting the vehicle owner, information on I-CAR training is available at http://www.i-car.com.

TECHNICAL INFORMATION - Continued

NASTF

The National Automotive Service Task Force is a not-for-profit, no-dues task force established to facilitate the identification and correction of gaps in the availability and accessibility of automotive service information, service training, diagnostic tools and equipment and communications for the benefit of automotive service professionals. NASTF is a voluntary, cooperative effort among the automotive service industry, the equipment and tool industry and automotive manufacturers. See their website http://www.nastf.org for information on NASTF programs and activities.

ASA

The Automotive Service Association (ASA) advances professionalism and excellence in the automotive repair industry through education, representation and member services. See their website http://www.asashop.org for information on ASA's programs and activities, or if you have any questions about membership, please call the ASA Membership Services Department at (800) ASA-SHOP, ext. 295, or send e-mail to asainfo@asashop.org.

ASE

The National Institute for Automotive Service Excellence (ASE) was established in 1972. ASE's mission is to improve the quality of vehicle repair and service through the testing and certification of repair and service professionals. See their website http://www.ase.com/ for information on ASE's programs and activities or e-mail to webmaster@asecert.org.

AGRSS99

The Automotive Glass Replacement Safety Standards (AGRSS99) Council, Inc. is a not-for-profit organization dedicated to the safe replacement of auto glass. Stationary (bonded) auto glass replacement is important in maintaining the structural integrity and safety features of the vehicle. The AGRSS99 Standard: ANSI 002-2002 is the North American standard detailing the steps and procedures to provide safer automotive glass replacement. See their website http://www.agrss.com for information on AGRSS99 programs and activities.

VEHICLE IDENTIFICATION

Be sure to accurately identify the vehicle you're estimating by noting the vehicle identification number, model and trim codes, production date, and any options (A/C, Elec. Lifts, Remote Mirror, etc.). Check with your dealer for the correct year and model. The times listed in this manual do not include any necessary alterations when a replacement assembly of one model or year is installed on another model or year. MOTOR Information Systems and/or anyone connected with it assumes no responsibility for the condition of or the use of salvaged replacement parts.

ADD IF REQUIRED

MOTOR Collision Estimating Data is based on the base model vehicle configuration, standard or regular production options, and/or standard replacement operations. "Add if required" operations are for extra procedures necessitated by optional factory equipment or certain collision scenarios that may be encountered. "Add if required" operations should be added to the estimate whenever applicable after an on-the-spot evaluation of vehicle damage and/or vehicle options.

CLEAN & VISUALLY INSPECT

This term is to clean the replacement assembly and to visually inspect only. Does not include measuring dimensions, trimming, or any disassembly.

COMPONENT CLASSIFICATION

The purpose of classifying components is to describe physical properties of the component, and classifications may inform the estimator that specialized technician skill levels and/or tools may be required. Indicators are not intended to determine labor rates charged, or to be inclusive of all components. Any additional component classification(s) should be determined after an on-the-spot evaluation of required repair procedures.

CLASSIFICATION INDICATORS ARE PROVIDED FOR YOUR CONVENIENCE AND MUST ONLY BE CONSIDERED A HELPFUL GUIDE.

MOTOR component classifications are defined as follows:

(M) Mechanical: Components that transform one form of motion or energy into another. Mechanical components would likely be serviced at a mechanical service facility rather than a body repair facility if that component failed during normal operation. Mechanical components will likely require a specialized technician skill level and/or specialized tools.

(S) Structural: Components that provide a load bearing foundation for the purpose of safety and/or stability

(no classification) Body: Components that do not fall under the mechanical or structural classification

D&R (Disconnect & Reconnect)

Some labor procedures require disconnecting (unplug and/or unbolt) of a component/assembly at the point where it is attached to the subject part. The component assembly is not completely removed from the vehicle. The component is reconnected during the assembly procedure. Due to various configurations and type of parts that may be involved in the D&R operations and considering that the times involved are generally not definable in tenths of hours, time for D&R is not provided. When D&R is necessary to perform a labor operation, it is included in that labor operation's time.

INCLUDED and/or NOT INCLUDED OPERATIONS

INCLUDED OPERATIONS:

When items or operations appear in the Guide to Estimating pages under the "Included" heading it means that the operation is performed in conjunction with another operation. For example, Steering Wheel R&I is an individual operation, but when replacing a steering column, steering wheel R&I is also performed and therefore included in Steering Column R&R.

If an item is listed without a qualifier, it means all labor has been considered within the indicated labor procedure. If a specific qualifier (such as R&I) appears, it means only the specified qualifier applies.

NOT INCLUDED OPERATIONS:

Items or operations listed under "Does Not Include" were not considered in the development of published labor operation times. These operations may or may not be required depending upon the vehicle or repair process used. If any of these items or operations are required, they should be considered by the estimator. If a specific qualifier (such as R&I) appears, it means only the specified qualifier applies.

OEM (Original Equipment Manufacturer)

Used to define original vehicle manufacturer.

OVERHAUL

Remove an assembly from the vehicle, disassemble, clean, inspect, replace parts as needed, reassemble, install and adjust (except wheel/suspension alignment). Overhaul time should be used only if the time for individual parts (less overlap) is more than the overhaul time.

OVERLAP

When replacing two or more components the duplication of included labor procedures is known as overlap. Labor procedures (R&R/R&I/D&R) that create overlap include, but are not limited to, mechanical attachment, welding, bonding and/or technician preparation.

For example, when replacing a quarter panel and rear body panel on the same vehicle, the common required labor procedures necessary to remove and replace or reinstall these components is known as overlap.

When a labor overlap condition exists, less time is required to replace adjoining components collectively than is required when they are replaced individually.

R&I (Remove & Reinstall)

Item is removed, set aside and later reinstalled and aligned for proper fit (does not include suspension/wheel alignment). Generally used to gain access to another part.

If a R&I time is not available, published R&R times can be used when the steps required to R&R a component are the same procedure steps required to R&I a component. Example: bolt- or clip-on moldings, ornamentation, mirrors, trim, door handles, locks, cylinders, latches, and many single piece components.

R&R (Remove & Replace)

Remove damaged part and replace with salvage replacement component/assembly, and align. Does not include suspension/wheel alignment or removal and installation of components attached to replacement part, such as moldings, emblems, nameplates, weatherstrips, etc.

TRANSFER

This term means to remove a usable part from a damaged assembly, then transfer it to the undamaged replacement assembly. Includes removal of the like part from the replacement assembly. An example would be replacing a salvaged door assembly on a vehicle that has tinted glass but the salvaged door is available only with clear glass, then this operation is for the removal of the undamaged tinted glass from the old door, then removing the clear glass from the salvaged replacement door and then installing this tinted glass to the salvaged replacement door.

STRUCTURAL COMPONENT IDENTIFICATION

Structural component identification information as presented in I-CAR Enhanced Delivery programs.

Welded structural parts can be made from different types of metal. Identification is not based on metal type. Replacement requires specific measuring equipment and vehicle dimensions must be correct. If improperly repaired, road performance and/or crashworthiness of the vehicle may be affected. Airbag deployment may also be affected.

Welded structural parts on a unibody vehicle typically include:
- APRONS/STRUT TOWER
- CENTER PILLAR
- CORNER PILLAR
- FRONT RAIL
- HINGE PILLAR
- LOCK PILLAR
- RADIATOR CORE SUPPORT
- REAR RAIL
- REAR STRUT TOWER
- ROCKER PANEL
- SUSPENSION CROSSMEMBER
- UPPER RAIL

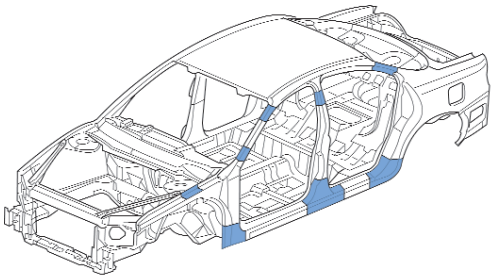
Welded structural parts of the body on a body-over-frame vehicle typically include:
- APRON ASSEMBLY
- CAB CORNER (PICK-UP)
- CAB BACK PANEL (PICK-UP)
- CENTER PILLARS
- CORNER PILLARS
- FRONT RAIL
- HINGE PILLARS
- LOCK PILLARS
- RADIATOR CORE SUPPORT
- REAR RAIL
- ROCKER PANELS
- UPPER RAIL

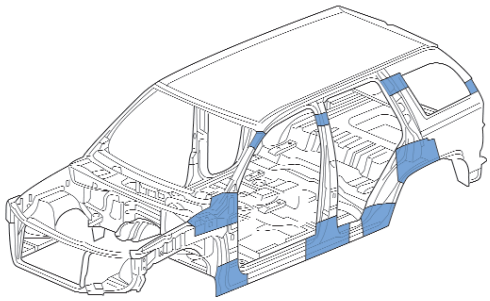
Some parts that are bolted, bonded or welded may add structural integrity to a vehicle's body. These parts may be made from different types of materials and vehicle dimensions must be correct before replacement. If improperly repaired, road performance and/or crashworthiness of the vehicle may be affected. Airbag deployment may also be affected.

Parts that may add structural integrity to a vehicle’s body may include:
- COWL ASSEMBLIES
- DASH PANEL
- ENGINE CRADLE (bolt-on)
- FLOOR PANEL
- IMPACT BAR (bolt-on)
- PERIMETER FRAME
- QUARTER PANEL
- RADIATOR CORE SUPPORT (bolt-on)
- REAR BODY PANEL
- ROOF PANEL
- STATIONARY GLASS (urethane bonded)

ACOUSTICAL AND STRUCTURAL FOAM FILLERS

This type of product is used by some OEMs to control NVH (noise, vibration and harshness) or add structural integrity to the vehicle body. Acoustical foam is a soft to firm, pliable product while structural foam is a hard, dense, rigid product. Acoustical and/or structural fillers may be found internally on vehicle panels; therefore, identification of foam type and location may require an inspection after vehicle disassembly. Foam products must be removed if within six inches of an open flame, excessive heat (600 degrees) or welding operation. Any foam damaged or removed during the repair process must be replaced.





SPECIAL NOTATION:
Not all vehicles contain foam fillers; others may contain foam fillers in one or more locations. Refer to OEM for specific repair recommendations/procedures and replacement product(s).

AIR CONDITIONER REFRIGERANT

Reported refrigerant capacities are FOR ESTIMATING PURPOSES ONLY. ALWAYS refer to the vehicle A/C label or manufacturer's service manual for recommended repair procedures and system capacity.

DAMAGED OR NON-REUSEABLE MOLDINGS AND FASTENERS

Some moldings may be damaged or broken during normal R&I procedures. Additionally, some plastic or metal fasteners may be damaged and their ability to be reused jeopardized because of single-use design, age or exposure to the elements. Moldings, emblems and trim attached using a heat stake method are considered to be non-reusable. Caution should be taken while removing all fasteners, both metal and plastic. MOTOR recommends these factors be considered and mutually agreed upon before finalizing any repair cost estimate.

ELECTRONIC SYSTEMS & ON-BOARD COMPUTERS

Special caution should be taken when servicing vehicles due to the wide use of computer modules, electronic sensors and printed circuit boards. This type of equipment is very sensitive to high temperatures and voltage fluctuations, including electrostatic discharge. A few safety tips you should consider are:

- Disconnect battery cable
- Computer modules should not be exposed to temperatures exceeding OEM recommendations
- Remove component if necessary
- Discharge static electricity before handling component(s)
- Avoid touching electrical terminals of component

I-CAR's Uniform Procedures for Collision Repair states that electronic components should be removed from the vehicle if welding is to take place within 12 inches of the component. Refer to manufacturer's specific recommendations for each vehicle.

HAZARDOUS MATERIALS

Regulations and safety considerations may require protective clothing, respirator, protective eyeglasses, and/or ear plugs be worn in certain areas of collision repair facilities. Caution must be exercised when dealing with isocyanates, flammables, fumes, liquids and airborne particles.

HYBRID/ELECTRIC VEHICLES

WARNING: HIGH VOLTAGE ELECTRICAL SYSTEM!

These vehicles are equipped with high voltage batteries and are capable of causing electrical shock. Failure to use caution in the proper disconnection of this electrical system may result in serious injury or death. For safety and ease of identification, electrical cables carrying the high voltage are colored orange. Any orange-colored cable should be avoided until the high voltage electrical system has been disabled. Follow OEM safety precautions including wearing personal protective equipment rated for working on Hybrid/Electric Vehicles. Follow OEM service repair information for disabling the high voltage electrical system before beginning any repairs.

OEM COLLISION REPAIR NETWORK

Some OEM(s) manufacture aluminum vehicles that have an established repair network for these vehicles and require collision repairs to be performed at an OEM authorized aluminum repair center. Manufacturers with collision repair networks covered in MOTOR's guide are Audi, BMW, Jaguar and Mercedes Benz. Refer to the OEM for complete information on collision repair network program.

PANEL BONDING (Metal Adhesives)

OEM labor procedures for "panel bonding" requires different procedural steps versus welding, such as panel/vehicle preparation, sectioning insert/sleeve, additional panel fit and adhesive application unless otherwise specified in a footnote attached to the sectioning operation. MOTOR published welded panel replacement labor times may be applied for "panel bonding" and would include all the additional procedure steps as outlined by the OEM. Refer to the Guide to Estimating pages for specific INCLUDED/NOT INCLUDED operations. An adjustment in time may or may not apply after an on-the-spot evaluation of required procedures. Refer to OEM for specific repair recommendations/procedures and replacement product(s).

REFINISH CLEAR COAT APPLICATION

Most major paint manufacturers recommend that when performing refinish repairs on an OEM base coat/clear coat or multistage finishes, the application of clear coat must be extended to the nearest panel edge or breakpoint to qualify for their lifetime refinish warranties.

RESTRAINT SYSTEM (Air Bag)

NOTE: RESTRAINT SYSTEMS, REPLACEMENT COMPONENTS and INSPECTION COMPONENTS are FOR ESTIMATING PURPOSES ONLY. Wiring repairs should only be performed in accordance with vehicle manufacturer specifications. Air bag components should never be refinished. Refinishing these components will alter the original design and change deployment characteristics. **Always refer to the vehicle manufacturer's recommended repair procedures when servicing any air bag system.**

Before repairing any air bag system, disconnect and isolate the battery cable so that any back-up power supply is discharged for the time period stipulated by the manufacturer to prevent accidental deployment when working on the vehicle. All system components and mounting areas must be inspected before energizing the system.

On some vehicles the windshield is considered an integral component of the overall system and has specific requirements regarding materials and procedures used when replacing a windshield. Factory recommended procedures must be followed when servicing this type of system. Some vehicles are equipped with dual stage air bags. The air bags are deployed at different rates depending on the severity of the crash, seat belt usage and driver position. If a dual stage air bag has deployed, it is possible that only one stage has deployed. If both stages have not deployed, there is a danger of the second stage deploying if the air bag is not properly handled. On vehicles that are equipped with dual stage air bags, ensure the air bag system is disabled before performing any repair procedures. The air bag should then be properly disposed of. Refer to the vehicle manufacturer's recommended procedures for air bag disposal.

Estimated Work Times for disabling vehicle safety restraint systems have been developed for instances where the OEM-recommended procedure steps required to disable the system are in addition to steps required to de-energize the vehicle by disconnecting the battery and/or removing a readily accessible fuse.

RESTRAINT SYSTEMS (Seat Belt)

Many automobile manufacturers recommend seat belt components be replaced when subjected to stress by occupants in a collision. Check the manufacturer for specific repair recommendations and procedures.

SAFETY NOTICE

Proper repair procedures are vital to the safe and reliable operation of all motor vehicles. The various operation descriptions listed throughout this guide should not be construed as exact repair procedures or methods. These will, of course, vary with the nature and extent of collision damage. Obviously, there are circumstances or situations where it would be inappropriate and unsafe to utilize replacement assemblies on a particular collision repair job. The best and safest method of repairs should be determined by the collision professionals involved using sound judgment and experience together with the vehicle manufacturer's latest repair recommendations.

This publication is no more than a GUIDE for estimating collision damage. It should be used with the same prudence that you would use with any other guide.

All replacement assemblies should be thoroughly checked for safety. Parts such as suspension and steering should be inspected for any wear or damage that would hinder the safe use of these components. The listed operation times contained in this manual are not an endorsement or recommendation of the use of these components.

SALVAGED ASSEMBLIES - GENERAL

SPECIAL NOTATION:

The collision repair facility must have the equipment, training, and experience using the latest factory/industry information and procedures. Ultimately, the safety and quality of any repair will depend not only on the equipment that is used and the procedure that is followed, but also on the skill and knowledge of the repair technicians, the steps they take to control repair quality and how well they check the details of the repair.

Some repair operations reported in this guide may be beyond the capability of the repair shop in terms of equipment, skill and knowledge, etc. In this case the repair shop should not attempt the repair.

MOTOR Information Systems or anyone connected with it assumes no liability of any kind for any loss or damage suffered by any party for the use of salvaged replacement assemblies or the method in which these parts are installed. It is the repair shop's responsibility to install these parts in a safe and proper manner. Therefore, it is the repair shop who must assume all liability in the choice, condition and installation of salvaged parts, particularly unibody structural parts. MOTOR Information Systems expressly disclaims all warranties, obligations and liabilities, either expressed or implied, in the use of this guide. MOTOR Information Systems neither assumes, nor authorizes any party to assume for it, any liability in connection with the use of this guide.

Extreme care and caution should always be used when performing collision repairs on all vehicles. All repairs must be of the highest quality using the latest factory recommended repair procedures with the following concerns kept in mind:

- Passenger Protection - Replacing damaged parts of a car designed to crush in a collision may reduce occupant protection in a future collision if the structural integrity is not restored.
- Safety & Handling - An improper repair can create braking, handling, vibration and noise problems. This may lead to possible safety problems.
- Corrosion Protection - A vehicle's ability to resist corrosion may be reduced if improper repairs are made and the manufacturer's corrosion protection is not restored. This may lead to future safety and/or resale value problems.
- Resale Value - The resale value of a vehicle can be reduced dramatically by improper repairs which may lead to a financial loss to the vehicle owner.

SECTIONING

Sectioning is an industry accepted procedure which involves replacing a vehicles welded body panel (quarter, rocker, rail, etc.) onto the undamaged portion of a vehicle body at a location other than at a factory seam. This may or may not be factory recommended procedure. Special care and training is required when sectioning any part due to the wide use of special steels and vehicle design. Repairs of this type should only be performed in accordance with the OEM service repair information, if available. When sectioning procedures are not available from the vehicle maker, it may be possible to section a part using vehicle-specific procedures developed by research organizations such as Tech-Cor and/or general sectioning guidelines taught by I-CAR. Please visit www.i-car.com/partial-replacement for more information.

The sectioning location may be affected after an on-the-spot evaluation of the vehicle's inner structure design.

SPECIAL SUBSTRATE METALS

Some vehicle manufacturers use special or alternative metals in the construction of their vehicles. When possible, parts made from one of the seven listed metals will be identified using the abbreviations shown below.

It is not always possible or practical to identify where special or alternative metals are used on a vehicle. Do not assume that a part NOT IDENTIFIED AS SPECIAL METAL ISN'T ACTUALLY MADE OF SPECIAL METAL. When in doubt, it is recommended that you contact the vehicle manufacturer for further information. WHEN PERFORMING REPAIRS TO SPECIAL METAL SUBSTRATES, REFER TO OEM RECOMMENDATIONS FOR SPECIFIC INFORMATION. IMPROPER REPAIRS MAY ADVERSELY AFFECT THE STRUCTURAL INTEGRITY AND SAFETY OF THE VEHICLE.

ALUMINUM (ALU): Aluminum is lighter than steel and is non-magnetic. Aluminum is sensitive to galvanic corrosion. Only use fasteners, tools and materials that are designated for use on aluminum. Heat limitations MUST be observed when working with this type of metal.

BORON STEEL (BOR): Boron steel has extremely high strength; do not use heat on this type of metal. It cannot be straightened because of the extremely high heat used in the forming process. The only solution for damage is replacement. Boron steel can be cut with a cutoff wheel. Drilling boron steel is very difficult and may be accomplished using a titanium drill bit combined with slow speed (490 rpm).

HIGH STRENGTH STEEL (HSS): Generally frame rails, inner rocker panels, suspension crossmembers and upper apron rails are made of this material (this varies by manufacturer). Heat limitations MUST be observed when working with this type of steel. When in doubt, most manufacturers recommend all steel be treated as HSS steel.

HYDROFORMED STEEL (HYD): Hydroformed parts may be sectioned depending on the vehicle manufacturer's recommendation. Heat limitations MUST be observed when working with this type of steel.

MAGNESIUM (MAG): Magnesium is much lighter, stronger and more resistant to corrosion than steel. Magnesium has the tendency to crack or break either from collision damage or during straightening due to its quick work-hardening characteristics. Magnesium is also not weldable with common collision repair facility GMA (MIG) welding capabilities. Do not use oxyacetylene equipment or plasma arc cutting equipment around this or any other magnesium part. If magnesium catches on fire, it requires a class D fire extinguisher.

SANDWICHED STEEL (SAS): This type of steel (OEMs may have other names) is being used on the dash panels, floor panels and oil pans, etc. This product has an engineered non-steel layer sandwiched between two cold rolled layers of steel; do not use heat on this type of metal unless recommended by OEM. It is used to help lower sound levels and vibration. This product may or may not be weldable with common collision repair facility GMA (MIG) welding.

ULTRA HIGH STRENGTH STEEL (UHS): Generally door guard beams, bumper reinforcements and other special purpose areas contain this type of steel. These parts must not be repaired. They are to be replaced only. Contact the vehicle manufacturer for applicable locations. This information supersedes information published in previous Guide to Estimating pages.

NOTE:
Due to space limitations, special substrate metals information is not available in MOTOR CEG Online or DVD products.

STEERING COLUMN

Many vehicle manufacturers use collapsible steering columns to absorb energy sustained from a collision impact. These columns should be inspected for proper length, binding and deformation among other specific considerations. Failure to do so may prevent proper operation of steering column and/or air bag deployment. MOTOR recommends following vehicle manufacturer's guidelines for inspection and replacement of these components.

STONE CHIP GUARD (Protective Material)

Vehicle manufacturers may apply a spray-on, chip-resistant coating to protect the vehicle's finish from chipping. This type of coating may be named differently depending on manufacturer ex.: Stone Guard, Soft-chip Primer, PVC Chipping Primer, Chip Guard, Gravel Guard, etc. This type of coating is designed to reduce paint chipping; appearance varies from textured surface to a smooth surface. Chip-resistant coatings may be applied to the vehicle's lower body and/or leading edges of the body. Refer to OEM service repair information for specific location, repair recommendations and/or replacement product(s). MOTOR recommends following OEM service repair information for replacement of these materials following a thorough on-the-spot evaluation of vehicle and damage in question.

STRUCTURAL GLASS

Urethane bonded stationary glass such as windshields, side/quarter glass and back glass adds structural integrity to a vehicle's body and may be considered a structural component on some vehicles. Therefore, it is important to use proper materials and procedures when installing this type of glass. I-CAR and some vehicle manufacturers recommend the use of epoxy primer on glass pinchweld where coating has been removed. Utilization of incorrect methods or materials could result in a failure to restore the vehicle's original structural integrity. Removal of some undamaged urethane bonded glass for reuse may not be possible due to damaging plastic locating studs and/or attached moldings. Some vehicle manufacturers recommend replacing glass that has been removed with new OEM glass. It is MOTOR's position that removal of the glass from the damaged part/panel for reuse is a process best reserved for the judgment of an estimator/appraiser following a thorough review of vehicle manufacturer guidelines.

LABOR TIMES LISTINGS

All operation times are listed in hours and tenths of an hour. A time listed as 3.5 indicates three and one half hours.

LABOR TIME PREMISE

The times reported in this publication are to be used as a GUIDE ONLY and apply to standard stock models only. Reported times include normal align procedure to insure proper fit of the individual replacement part being installed. Reported times include tube/paddled application of OEM caulking and seam sealer removal/application on welded replacement panels. Spray-able seam sealer equipment requires preparation and adjustment before application and is NOT INCLUDED IN LABOR TIME.

Times do not apply to vehicles with equipment other than that supplied by the vehicle manufacturer as standard or regular production options. If other equipment is used, the time may be adjusted to compensate for the variables. Times published also do not include removal of replacement parts and/or assemblies from donor vehicle or assembly. If additional aligning or repair must be made, such factors should be considered when developing the estimate. Items not listed under the INCLUDED/DOES NOT INCLUDE heading for any given procedure have not been considered in the estimated work time development for that procedure, unless specified by a footnote.

OPERATION TIMES LISTED ARE BASED ON UNDAMAGED OEM PARTS INSTALLED ON UNDAMAGED VEHICLES AS INDIVIDUAL OPERATIONS. TIME HAS NOT BEEN CONSIDERED FOR ALIGNMENT PULLS, DAMAGE RELATED ACCESS TIME, DAMAGED, REMANUFACTURED OR AFTERMARKET PARTS. SOME OPERATION TIMES ARE APPLICABLE AFTER BOLTED, ATTACHED OR RELATED PARTS HAVE BEEN REMOVED. REFER TO SPECIFIC FOOTNOTES ATTACHED TO OPERATION TIME LISTING.

LABOR TIME DOES NOT INCLUDE:

SPECIAL NOTATION: The items listed below apply to all labor procedures.

- A/C system, Evacuate & Recharge
- Alignment, check or straightening related parts
- Alignment check of front or rear suspension/steering
- Aftermarket & OEM accessories
- Anti-corrosion material restoration/application
- Battery D&R/recharge
- Brakes, bleed and adjust
- Broken glass removal or clean up
- Caulk (non-OEM), undercoat or sound insulate on paint inner areas
- Clean up or detailing of vehicle prior to delivery
- Clean or recondition parts or assemblies
- Component, R&R or Transfer (bolt-on, riveted or welded)
- Computer control module D&R/relearn
- Conversion Vans (special components, equipment and trim)
- Cutting, pulling or pushing collision damaged parts for access
- Damaged or defective replacement parts
- Drain & refill fuel tank
- Drilling, modification or fabrication of mounting holes
- Fabricate templates, reinforcing inserts, sleeves or flanges
- Filling, plugging and finishing of unneeded holes in replacement parts
- Information labels, Install
- Material costs
- Pinch weld clamp damage repair
- Refinishing
- Removal of emblems, nameplates, trim, etc. from donor part or assembly
- Removal of outer panel from salvaged replacement assembly
- Reset electronic memory functions after battery disconnect
- Road test vehicle
- Rusted, frozen, broken or corrosion damaged components
- Salvaged replacement assembly, preparation, Trim, fit and/or modify
- Scan tool clear/reset electronic module
- Scan tool diagnostics
- Steering Angle Sensor recalibration
- Straighten or align used, reconditioned or non-OEM parts
- Structural damage diagnosis and vehicle set up time
- Structural foam removal or application
- Test panel/Spray caulk
- Undercoating, tar or grease removal

LABOR TIME PREMISE (continued)

- Waste disposal fees (all types)
- Weld through primer
- Welded seam surface finishing finer than 150 grit sandpaper
- Wheel or hub cap locks R&I

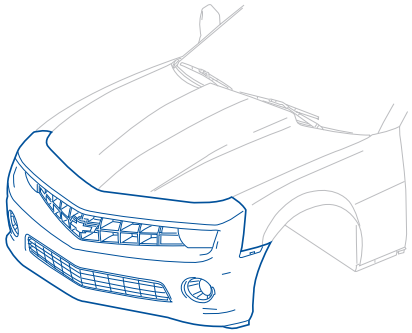
FRONT BUMPER ASSEMBLY - R&R ALL TYPES

INCLUDED:

- Align to vehicle
- Assembly R&R
- Grille (If mounted in bumper)

DOES NOT INCLUDE:

- Air bag sensor
- Battery
- Bumper brackets/frame rail extensions
- Distance sensor
- Emblems & nameplates
- Energy absorber
- Lamp aiming
- Lamps
- License bracket
- Moldings
- Reinforcement/impact bar
- Stripe tape, decals or overlays
- Valance panel/spoiler



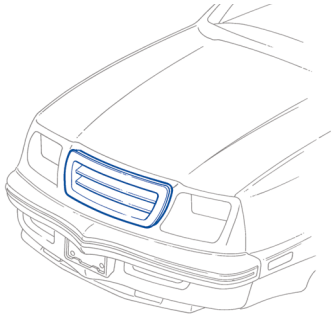
GRILLE

INCLUDED:

- Grille
- Lamp (in grille, std equip)

DOES NOT INCLUDE:

- Adjacent panels and components
- Emblems & nameplates
- Lamp aiming
- Moldings
- Ornamentation
- Stripe tape, decals & overlays



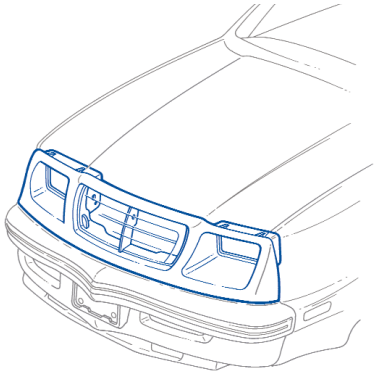
HEADER PANEL OR FRONT COVER

INCLUDED:

- Align to vehicle
- Bolted-on extensions & fillers
- Grille
- Lamp

DOES NOT INCLUDE:

- Bumper assembly
- Drill time
- Emblems & nameplates
- Lamp aiming
- Moldings & impact strips
- Ornamentation
- Stripe tape, decals or overlays



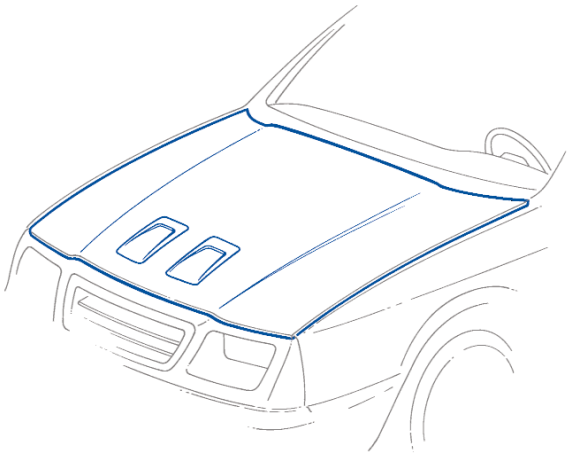
Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

HOOD

SPECIAL NOTATION:
Disconnect at hinges.

INCLUDED:
- Align to vehicle
- Hood panel, R&R
- Safety catch
- Striker

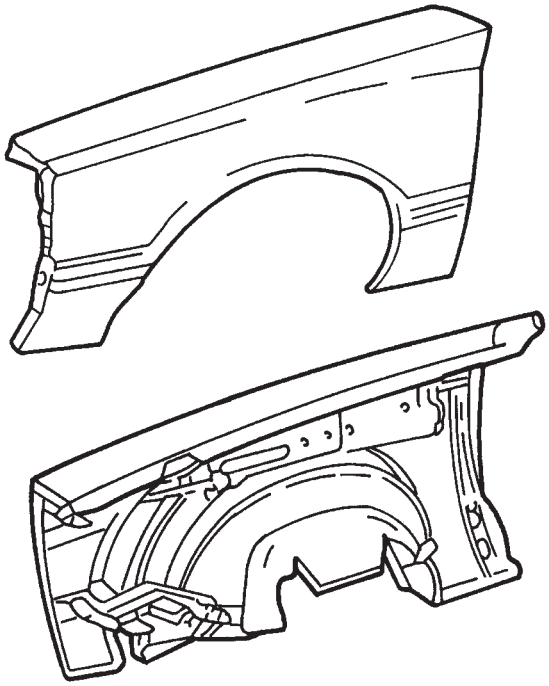
DOES NOT INCLUDE:
- Air inlet system (if necessary)
- Drill time
- Emblems & nameplates
- Hinge
- Hood lamp (if necessary)
- Hood lock
- Insulation
- Moldings & ornamentation
- Scoop
- Stripe tape, decals or labels
- Washer hoses & nozzle (mounted to hood)
- Weatherstrips & seals (mounted on hood)



FENDER ASSEMBLY

INCLUDED:
- Align to vehicle
- Cornering lamps
- Fender, R&R
- Fender liners
- Side marker

DOES NOT INCLUDE:
- Antenna
- Battery
- Bumper, R&I
- Drill time
- Emblems & nameplates
- Fillers (if mounted to fender)
- Grille
- Header panel
- Headlamps
- Hood
- Inner panels & wheelhouse
- Lamp aiming
- Mirror
- Moldings
- Mud guard
- Remove usable parts from damaged fender
- Road wheel
- Scoop
- Side repeater lamps (if mounted to fender)
- Spoilers & flares
- Stripe tape, decals or overlays



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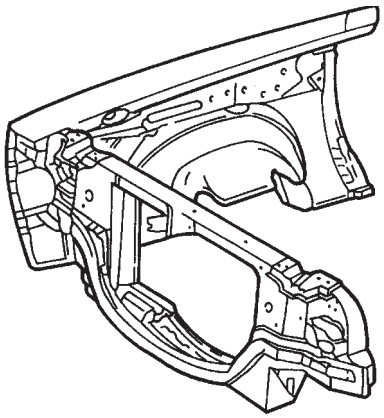
FENDER & RADIATOR SUPPORT (Conventional Frame Vehicles)

SPECIAL NOTATION:
This operation applies only to conventional framed vehicles with non-welded front sheet metal. Time is to unbolt radiator support from the frame.

INCLUDED:
- Align to adjacent sheet metal
- Assembly R&R

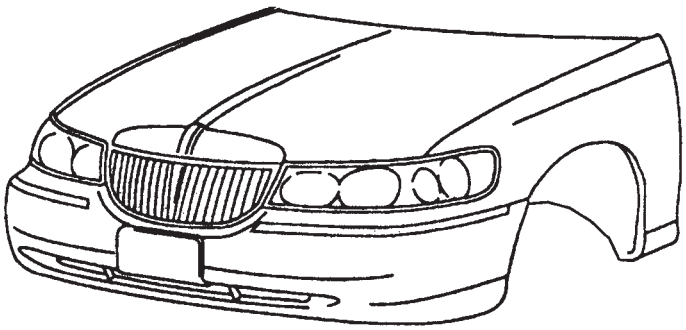


DOES NOT INCLUDE:
- Air conditioning parts
- Antenna
- Battery tray
- Battery
- Bolt-on extensions
- Bolted-on parts
- Bumper assembly
- Emblems & nameplates
- Evacuate & recharge A/C system
- Grille
- Header panel or grille panel
- Hood
- Lamp aiming
- Lamps
- Mirror
- Moldings
- Mud guard
- Pressure test or inspect radiator
- Radiator
- Remove usable parts from damaged components
- Road wheel
- Spoilers & flares
- Stripe tape, decals or overlays
- Valance panel

FRONT END SHEET METAL (Conventional Frame Vehicles)

SPECIAL NOTATION:
This operation applies only to conventional framed vehicles with non-welded front sheet metal. Time is to replace as an assembly from the frame and cowl as a unit.
Front end sheet metal refinish times include the bumper cover refinish time. A separate refinish time will be published in instances where the OEM provides non-painted bumper covers as an option.

INCLUDED:
- Align to vehicle
- Antenna (If attached to fender)
- Assembly as a unit, R&R
- Drain, check and refill coolant
- Fan shroud
- Fender inner skirts
- Fenders
- Front bumper assembly
- Front lamps
- Grille
- Grille panel
- Hood
- Radiator support
- Splash shields



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FRONT END SHEET METAL (Conventional Frame Vehicles) - Continued

DOES NOT INCLUDE:

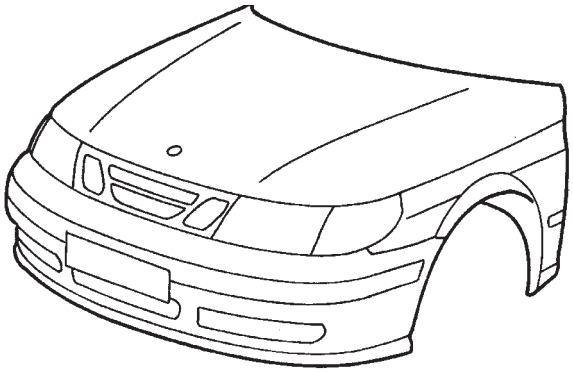
- Battery
- Disassemble replacement front end assembly
- Electrical wiring
- Emblems & nameplates
- Evacuate & recharge A/C system
- Hoses, R&R
- Lamp aiming
- Moldings & ornamentation
- Pressure test or inspect radiator
- Remove usable parts from damaged components
- Stripe tape, decals or overlays

FRONT END SHEET METAL - BOLTED-ON (Unitized Vehicles)

SPECIAL NOTATION:
Time is to replace all bolt-on sheet metal from the unibody front inner structure.
Front end sheet metal refinish times include the bumper cover refinish time. A separate refinish time will be published in instances where the OEM provides non-painted bumper covers as an option.

INCLUDED:

- Align to vehicle
- Antenna, (If attached to fender)
- Exterior bolt-on sheet metal, R&R
- Fenders
- Front bumper
- Front lamps
- Grille
- Grille panel
- Hood
- Splash shields



DOES NOT INCLUDE:

- All welded parts
- Battery
- Disassemble replacement front end assembly
- Electrical wiring
- Emblems & nameplates
- Evacuate & recharge A/C system
- Hoses
- Lamp aiming
- Moldings & Ornamentation
- Pressure test or inspect radiator
- Remove usable parts from damaged components
- Stripe tape, decals & overlays

SHORT FRONT INNER STRUCTURE (Unitized Vehicles)

VEHICLES WITH FACTORY SEAMS IN FRONT PORTION OF APRONS:

Assembly is serviced with complete radiator support, the front portion of both welded inner fender aprons, both upper rail reinforcements and both frame rails as a unit. Detach & weld aprons at the factory seams, R&R complete upper reinforcements and replace frame rails ahead of the strut towers. Time is after all necessary bolted-on parts removed.

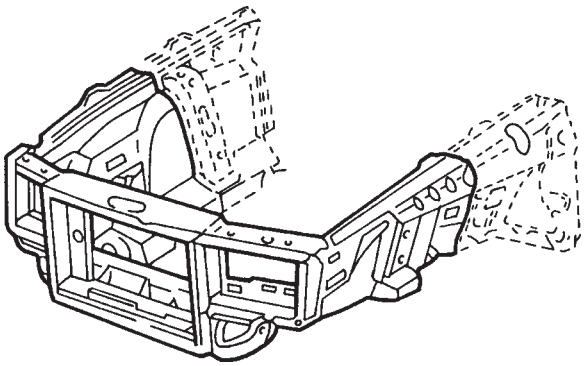
VEHICLES WITHOUT FACTORY SEAMS IN FRONT PORTION OF APRONS:

Assembly is serviced with complete radiator support and the front portions of the front frame rails. Detach and replace frame rails ahead of the strut towers and R&R upper reinforcements. Time is after all necessary bolted-on parts are removed.

SHORT FRONT INNER STRUCTURE (Unitized Vehicles) - Continued

INCLUDED:
- Assembly, R&R
- Caulk/seam sealer, R&R (at welded joints)
- Cutting and welding as necessary
- Use of inserts as necessary

DOES NOT INCLUDE:
- Air bag components
- Air conditioning components
- Bolted-on parts
- Brake, fuel and emission lines
- Decals, labels
- Electrical wiring
- Engine & drivetrain
- Engine mounts
- Lamp aiming
- Related parts, R&R

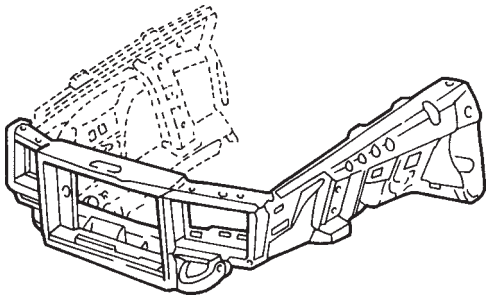


PARTIAL FRONT INNER STRUCTURE (Unitized Vehicles)

Assembly is serviced with complete radiator support and one welded inner fender apron with upper rail reinforcement and frame rail as a unit. Time is after all necessary bolted-on parts are removed and to detach and weld at the floor pan, hinge pillar and cowl panel.

SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:
- Alignment that can be accomplished by moving or shifting
- Assembly as a unit, R&R
- Carpet and insulation turn back
- Caulk/seam sealer or sealer, R&R (at welded joints)
- Cowl trim
- Cutting and welding as necessary



DOES NOT INCLUDE:
- Air bag components
- Air conditioning components
- Bolted-on parts
- Brake, fuel and emission lines
- Carpeting, insulation, seats and console
- Cruise control parts
- Decals, labels
- Electrical wiring
- Engine & drivetrain
- Engine mounts
- Exhaust system
- Instrument and dash panel
- Lamp aiming
- Remove bolted-on parts from replacement front inner structure
- Steering components
- Suspension assembly
- Windshield and moldings

COMPLETE FRONT INNER STRUCTURE (Unitized Vehicles)

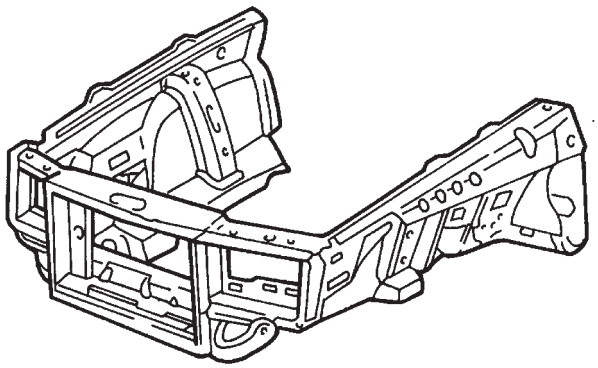
Assembly is serviced with complete radiator support, both welded inner fender aprons, upper rail reinforcements and frame rails as a unit. Time is after all necessary bolted parts are removed and to detach and weld at the floor pan, hinge pillars and cowl panels.

SPECIAL NOTATION:

Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Alignment that can be accomplished by moving or shifting
- Assembly as a unit, R&R
- Carpet and insulation turn back
- Caulk/seam sealer, R&R (at welded joints)
- Cowl trim
- Cutting and welding as necessary



DOES NOT INCLUDE:

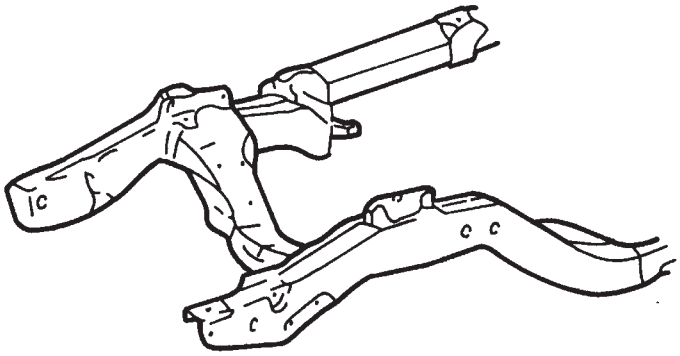
- Air bag components
- Air conditioning components
- Bolted-on parts
- Brake, fuel and emission lines
- Carpeting, insulation, seats and console
- Cruise control parts
- Decals, labels
- Electrical wiring
- Engine & drivetrain
- Engine mounts
- Exhaust system
- Instrument and dash panel
- Lamp aiming
- Remove bolted-on parts from replacement front inner structure
- Steering components
- Suspension assembly
- Windshield and moldings

FRONT FRAME SECTION (Conventional Frame Vehicles)

Time is to replace front portion of the frame from the cowl area forward.

INCLUDED:

- Cut & remove damaged frame section
- Install replacement frame section
- Transfer steering gear and linkage as an assembly
- Steering gear/gear assembly R&R/R&I



DOES NOT INCLUDE:

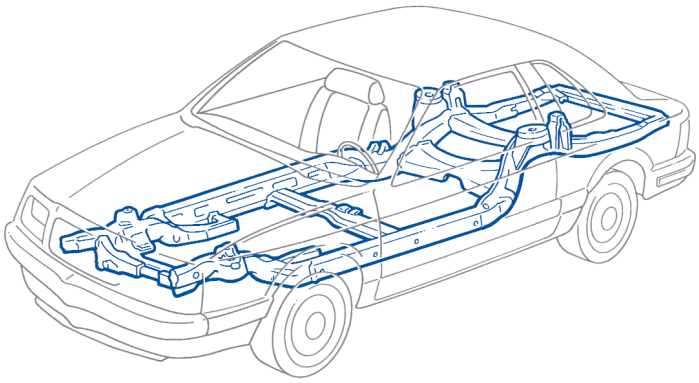
- Adjust parking brakes
- Anti-corrosion protection
- Bleed brake hydraulic system
- Bolted-on parts
- Brake Hydraulic Lines
- Electrical wiring
- Engine & transmission
- Front bumper
- Front sheet metal
- Front suspension
- Replacement or transfer of any welded/riveted parts from assembly
- Steering gear individual components R&R/R&I
- Suspension alignment

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

COMPLETE FRAME ASSEMBLY (Conventional Frame Vehicles)

INCLUDED:

- Bed assembly R&I (truck)
- Body assembly R&I
- Engine & drivetrain assemblies R&I
- Front & rear suspension assemblies R&I
- Front & rear bumpers R&I
- Front sheet metal assembly R&I
- Rear bed assembly (trucks) R&I
- Rear body assembly R&I
- Fuel tank (primary)
- Transfer steering gear and linkage as an assembly
- Steering gear/gear assembly R&R/R&I
- Transfer lines to new assembly



DOES NOT INCLUDE:

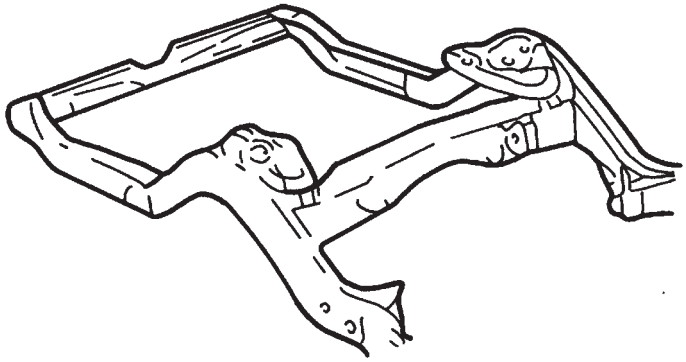
- Adjust parking brakes
- Anti-corrosion protection
- Auxiliary fuel tank R&I (second tank)
- Auxiliary fuel tank (second tank)
- Bleed brake hydraulic system
- Electrical wiring
- Exhaust systems
- Fluids, top off
- Heat shields
- Interior trim/carpet
- Power steering cooler
- Pulling or straightening time
- Replacement or transfer of any welded/riveted parts from assembly
- Seats
- Shift & throttle linkage adjust
- Special equipment transfer
- Steering gear individual components R&R/R&I
- Suspension/wheel alignment
- Transfer fuel (hold tank if necessary)
- Transfer lines to new assembly
- Transmission cooler
- Wheels

REAR FRAME SECTION (Conventional Frame Vehicles)

Time is to replace rear portion of the frame.

INCLUDED:

- Cut & remove damaged frame section
- Install replacement frame section



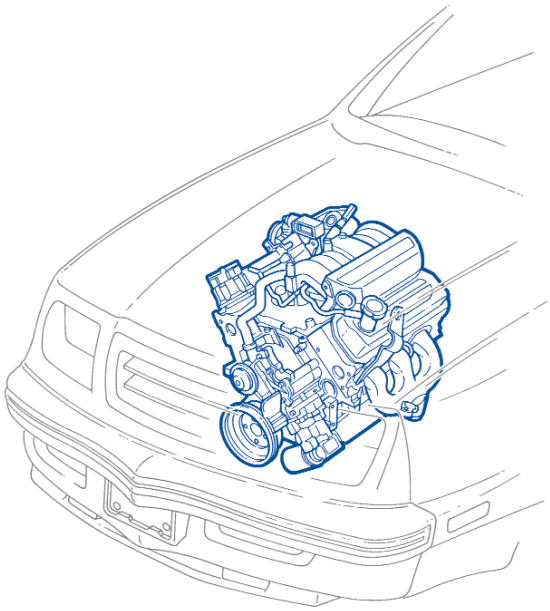
DOES NOT INCLUDE:

- Adjust parking brakes
- Anti-corrosion protection
- Bleed brake hydraulic system
- Bolted-on parts
- Brake Hydraulic Lines
- Electrical wiring
- Exhaust system
- Fuel tank
- Fuel Lines & Parking Brake Cables
- Rear suspension or Axle
- Rear sheet metal
- Rear bumper
- Replacement or transfer of any welded/riveted parts from assembly
- Suspension alignment

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

ENGINE/TRANSAXLE ASSEMBLY R&I

This operation time is only to remove and re-install the engine and transmission to facilitate access for other collision repair or replacement operations. Time does not include replacement or transfer of any parts of the assembly.



INCLUDED:

- Air cleaner
- Hoist or lift attach
- Remove & install as an assembly
- Splash shields (if necessary)

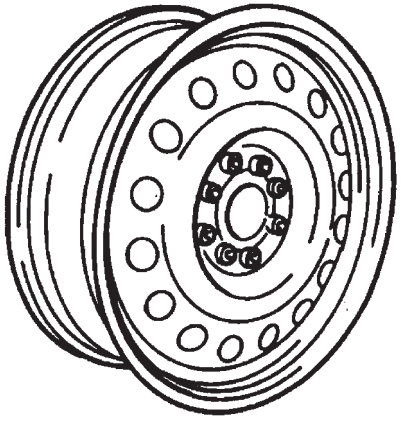
DOES NOT INCLUDE:

- A/C condenser
- Drain & replace oil and fluids
- Electrical wiring
- Evacuate & recharge A/C system
- Hood
- Linkage adjustments
- Radiator
- Replacement of any parts
- Road Test

ROAD WHEEL – R&R

SPECIAL NOTATION:

When required, an additional 0.3 hrs. may be necessary to remove a spare tire from its storage location and install it on the hub, later remove the spare tire from hub and return it to the original storage location.



INCLUDED:

- Raise & support vehicle
- Remove & reinstall wheel/tire assembly
- Transfer tire
- Lower vehicle
- TPMS sensor, if attached to valve stem
- Valve stem

DOES NOT INCLUDE:

- Balancing
- Cost of valve stems or weights
- Lock type lug nuts
- Lock type wheel covers
- Scan tool clears/reset
- Tire disposal fee

BLEED BRAKE HYDRAULIC SYSTEM

SPECIAL NOTATION:

Bleed Brake System operation times are based upon other suspension and/or brake work already being performed and the Bleed Brake System Operation performed in conjunction with those other operations.

INCLUDED:

- Bleed brake lines
- Add fluid to master cylinder reservoir

DOES NOT INCLUDE:

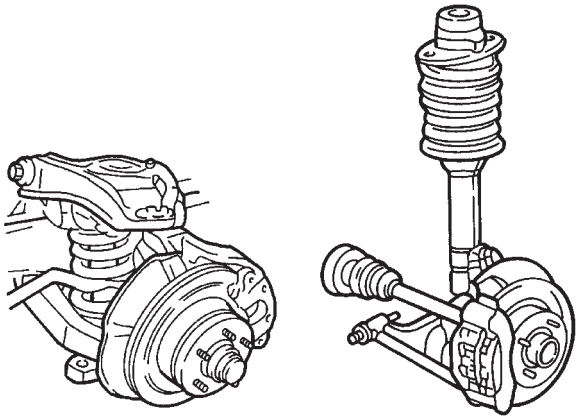
- Brakes adjust
- Cost of brake fluid

FRONT SUSPENSION ASSEMBLY R&I

This operation time is only to remove and re-install the front suspension to facilitate access for other collision repair or replacement operations. Time does not include replacement or transfer of any parts of the assembly.

INCLUDED:
- Raise & support vehicle (one time)
- Remove & install as an assembly

DOES NOT INCLUDE:
- Brakes adjust & bleed
- Brake calipers R&I
- Brake shoes or pads
- Road wheel
- Suspension/wheel alignment
- Wheel cylinders transfer

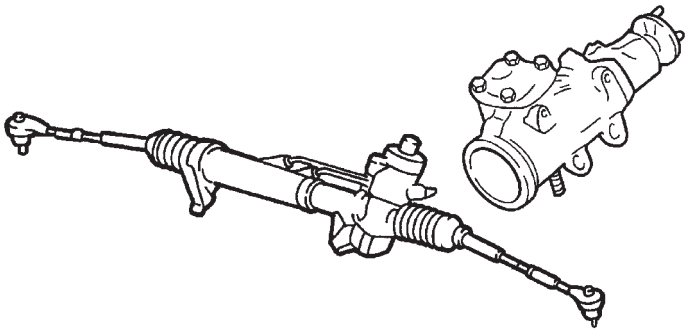


STEERING - GEAR BOX ASSEMBLY R&I

This operation time is only to remove and re-install the assembly to facilitate access for other collision repair or replacement operations. Time does not include replacement or transfer of any parts of the assembly.

INCLUDED:
- Raise & support vehicle (one time) if necessary
- Remove & install as an assembly

DOES NOT INCLUDE:
- Adjustment
- Check for wear
- Wheel alignment

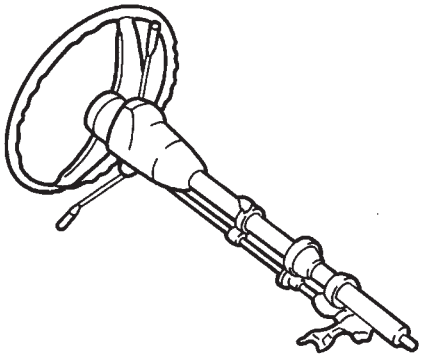


STEERING COLUMN ASSEMBLY R&I

This operation time is only to remove and re-install the assembly to facilitate access for other collision repair or replacement operations. Time does not include replacement or transfer of any parts of the assembly.

INCLUDED:
- Assembly with steering wheel, R&I

DOES NOT INCLUDE:
- Electrical wiring
- O/H or replacement of any parts
- Refinish column jacket
- Replace or transfer key & lock
- Road test vehicle
- Wheel alignment



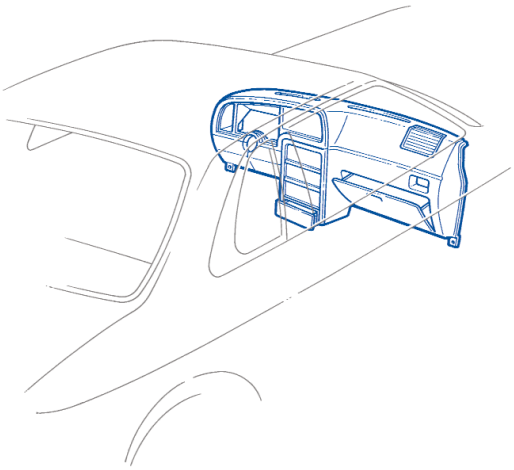
INSTRUMENT PANEL

INCLUDED:

- R&R Instrument Panel as an assembly

DOES NOT INCLUDE:

- Accessory items
- Air conditioning controls
- Cruise control
- Electrical wiring
- Inner cowl supports and brackets
- Remote control mirrors
- Steering column R&I
- Test all necessary electrical components for correct operation and reset as required



WINDSHIELD & BACK GLASS

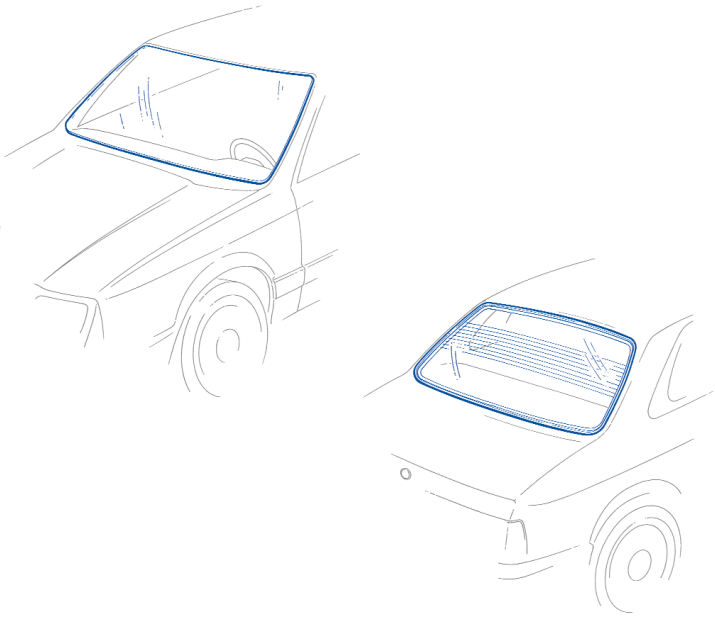
SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old urethane, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Rear view mirror R&I
- Reveal and interior moldings/trim
- Rubber channel R&I
- Wiper arm R&I

DOES NOT INCLUDE:

- Antenna
- Broken glass clean up
- Check window opening for proper size
- Cost of installation material or kit
- High mounted stop light
- Mounting adhesive removal



AXLE HOUSING ASSEMBLY - 4WD FRONT

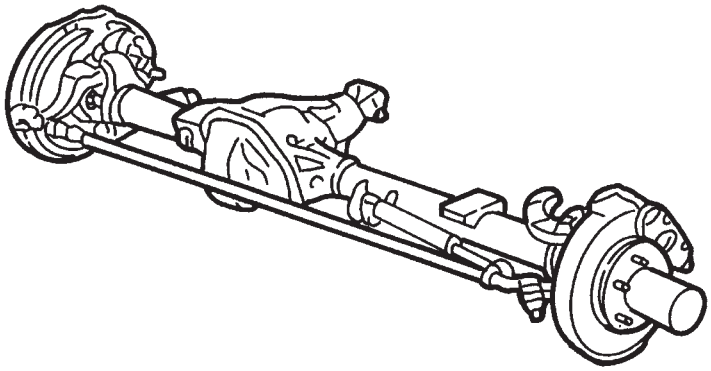
This operation time is only to remove and re-install the assembly to facilitate access for other collision repair or replacement operations. Time does not include replacement or transfer of any parts of the assembly.

INCLUDED:

- Raise & support vehicle (one time) if necessary
- Remove & install as an assembly

DOES NOT INCLUDE:

- Any adjustments
- Brake calipers R&I
- Brake shoes or pads R&I
- Brake adjustment or bleeding
- Check for wear
- Check & fill with oil
- Replacement or transfer of any parts
- Road test vehicle
- Road wheels
- Wheel alignment
- Wheel cylinders R&I



COWL, HINGE PILLAR & DASH PANEL SECTION (Conventional Frame Vehicles)

Assembly is serviced with complete cowl, dash, & both hinge pillars as an assembly. Time is to cut through the windshield posts and across the floor (at the base of the front door openings) in the factory seams and/or the best place. Includes the use of inserts (but not fabrication of inserts). Add to aim front head lamps, recharge A/C system (plus material costs), align suspension and bleed brake hydraulic system if necessary.

SPECIAL NOTATION:

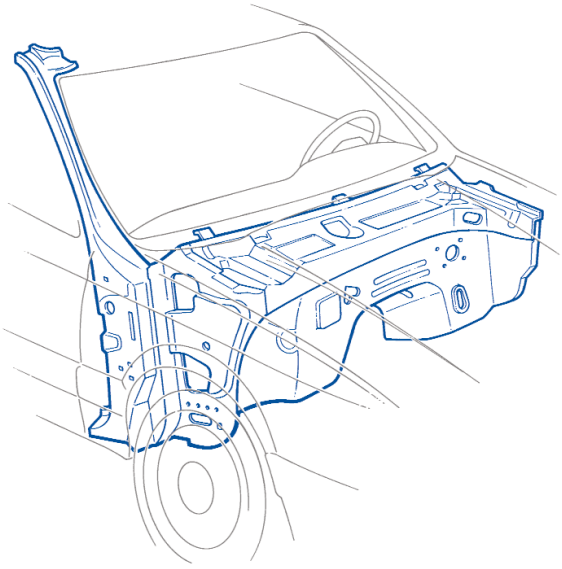
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Both front doors R&I
- Carpeting, sill plates, front seats, center console R&I
- Front sheet metal assembly R&I
- Remove & replace factory caulk/seam sealer at welded joints
- Remove damaged assembly and replace as a unit
- Windshield & moldings

DOES NOT INCLUDE:

- A/C & heater hoses, components
- Air Bag & related parts
- Anti-corrosion protection
- Bolted-on parts
- Brake master cylinder/booster & related parts
- Dash/Instrument panel, instruments and switches
- Electrical wiring
- Engine & transmission
- Headliner
- Interior moldings
- Recharge A/C System
- Replacement or transfer of any parts from assembly
- Roof rail molding
- Steering column assembly
- Windshield wiper motor/linkage



Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

HINGE PILLAR SECTION

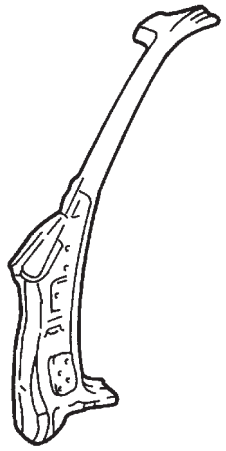
Hinge pillar serviced with inner and outer components and reinforcements as an assembly. Time is with windshield, front fender & door removed. Includes the use of inserts (but not fabrication of inserts).

SPECIAL NOTATION:

Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Adhesive application if required (all types)
- Carpet & insulation turn back
- Cowl side trim, insulation material
- Cutting & welding as necessary
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Hinge R&I (bolted type)
- Jamb switch, sill plates and weatherstrips
- Remove & replace as an assembly



DOES NOT INCLUDE:

- Air conditioning parts R&I
- Anti-corrosion protection
- Bolted-on parts
- Carpet, insulation & seat R&I
- Dash/instrument panel R&I
- Dash safety pad R&I
- Door R&I
- Electrical wiring
- Fender R&I
- Headliner

DOOR ASSEMBLY (Front, Rear, Side & Back)

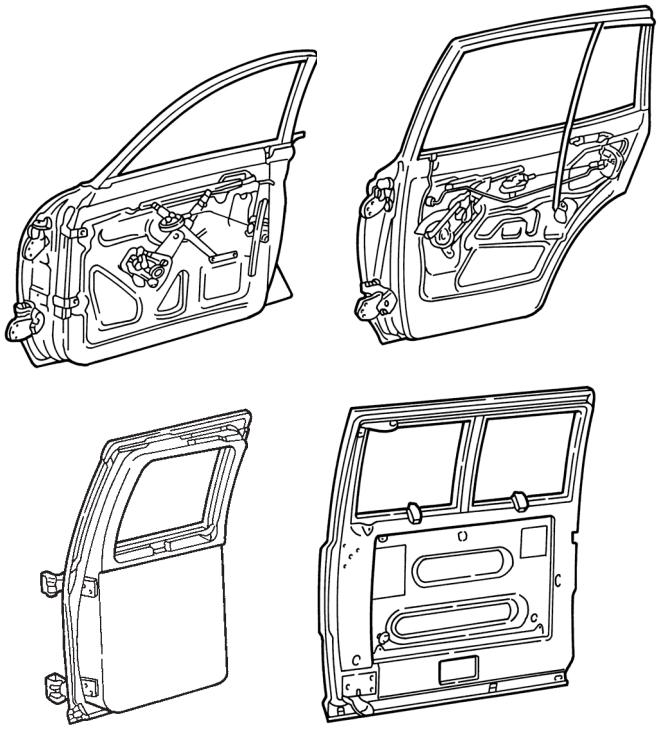
SPECIAL NOTATION:
Assembly is serviced without Trim Panel, Outer Mirror or Hinges.
Disconnect at hinges (unless otherwise noted in text).

INCLUDED:

- Align to vehicle
- Inside handles & bezels
- Lock cylinder R&I
- Remove & replace as an assembly
- Trim panel R&I

DOES NOT INCLUDE:

- Drill or fill time
- Electrical wiring
- Emblems & nameplates
- Glass
- Hinge
- Install new glass
- Latch mechanisms
- Lock cylinder recoding
- Mirror
- Moldings
- Outside handle
- Passive restraint system
- Regulator
- Refinishing
- Remove usable parts from damaged door
- Stripe tape, decals or overlays
- Transfer useable parts to replacement door
- Weatherstrips
- Window frame



ROCKER SECTION

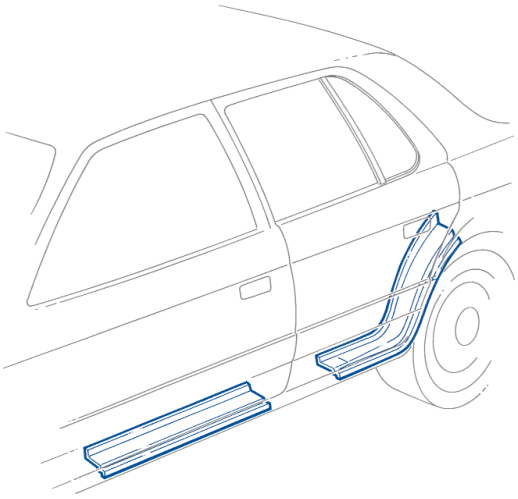
Assembly is serviced with outer and inner rocker panels. Time is to cut and weld at the base of the door posts, lock pillar or dog leg. Includes the use of inserts (but not fabrication of inserts).

INCLUDED:

- Adhesive application, if required (all types)
- Carpet & insulation turn back
- Caulk/seam sealer
- Cutting & welding as necessary
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Interior trim panels
- Remove and replace caulk/seam sealer
- Sill plates
- Weatherstrips pull back

DOES NOT INCLUDE:

- Anti-corrosion protection
- Carpet, insulation or seat R&I
- Control cables
- Door
- Electrical wiring
- Emblems & nameplates
- Fender
- Fuel lines
- Moldings
- Stripe tape, decals



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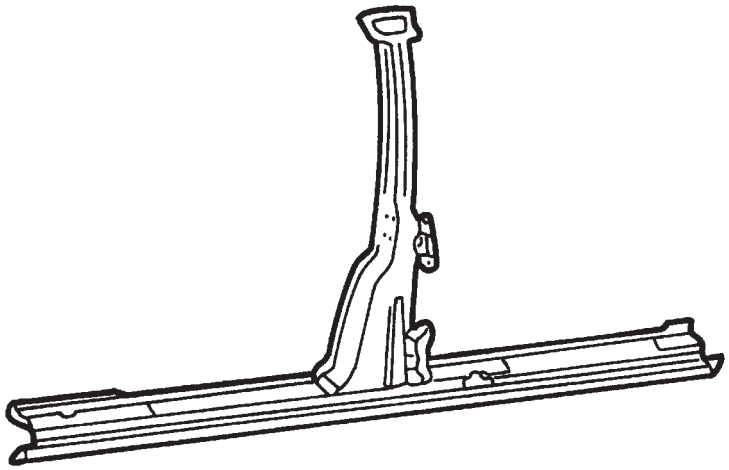
CENTER PILLAR & ROCKER SECTION

Assembly is serviced with outer and inner rocker panels and center pillars. Time is to detach and weld at the center post just below roof and rocker panel at the base of the front door post and dog leg. Includes the use of inserts (but not fabrication of inserts).

INCLUDED:

- Adhesive application if required (all types)
- Carpet & insulation turn back
- Caulk/seam sealer
- Cutting & welding as necessary
- Door striker
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Interior trim panels
- Remove & replace caulk/seam sealer
- Seat belt anchor
- Sill plates
- Weatherstrips



DOES NOT INCLUDE:

- Air bag components
- Carpet, insulation and seat (front and rear) R&I
- Doors
- Drill time
- Electrical wiring
- Emblems & nameplates
- Fuel lines
- Headliner
- Hinge (weld type)
- Hinge plate transfer
- Lamp R&I
- Moldings
- Roof cover
- Stripe tape, decals

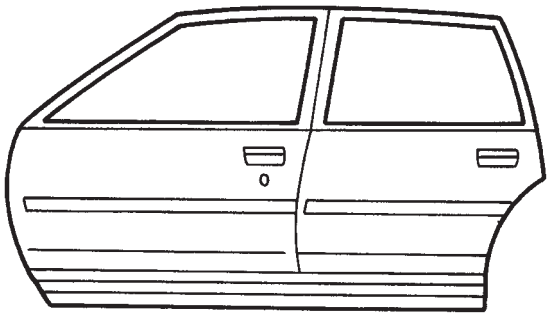
DOORS, CENTER PILLAR & ROCKER SECTION

Assembly is serviced with outer and inner rocker panels and center pillars as well as both front & rear doors. Time includes R&R of both doors. Includes the use of inserts (but not fabrication of inserts).

SPECIAL NOTATION:
See door, rocker and center post labor procedures for the complete listings of INCLUDED and NOT INCLUDED operations.

INCLUDED:

- Carpet & insulation turn back
- Cutting & welding as necessary
- Door assemblies remove & replace
- Door trim panels R&I
- Door lock cylinders R&I
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Interior trim panels
- Remove & replace caulk/seam sealer
- Seats (front & rear)



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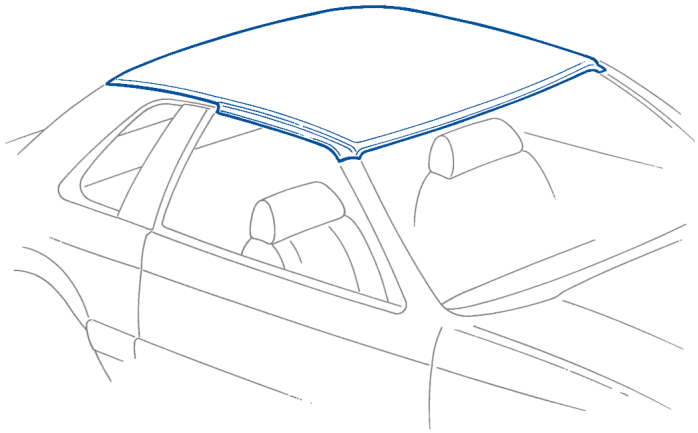
ROOF SECTION

Assembly is serviced with complete roof panel, roof rails, header rail, upper portions of the windshield pillars, quarter sail panels, and center posts as a unit. Time is to cut through the windshield, quarter and back glass openings in the windshield posts, center pillars, back posts and in the quarter panel sail area. Includes the use of inserts (but not fabrication of inserts). Does not include any additional operations that may be necessary for sunroofs, T-tops, etc.

SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal R&I procedures on some applications. Consider these factors before performing glass operations in the event unavoidable damage occurs.

INCLUDED:

- Adhesive application if required (all types)
- Caulk/seam sealer
- Cutting & welding as necessary
- Flutter material
- Front & rear seats
- Glass & reveal moldings (windshield, quarter & back)
- Glass run channels
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Headliner, coat hooks and grab handles
- High mounted stop lamp (if attached to roof)
- Lamp (if attached to roof)
- Liftgate R&I
- Moldings
- OEM sunroof or "T" top
- Quarter trim panels
- Rear view mirror/support (attached to roof)
- Reveal & interior moldings
- Sunvisor
- Upper quarter trim panels
- Weatherstrips & retainers



DOES NOT INCLUDE:

- Anti-corrosion protection
- Electrical wiring
- Emblems & nameplates R&I
- GPS Antenna
- Header panels
- Lamp (exterior)
- Luggage rack
- Rear package tray trim
- Roof fabric cover
- Roof rails
- Sound deadening material
- Stripe tape, decals

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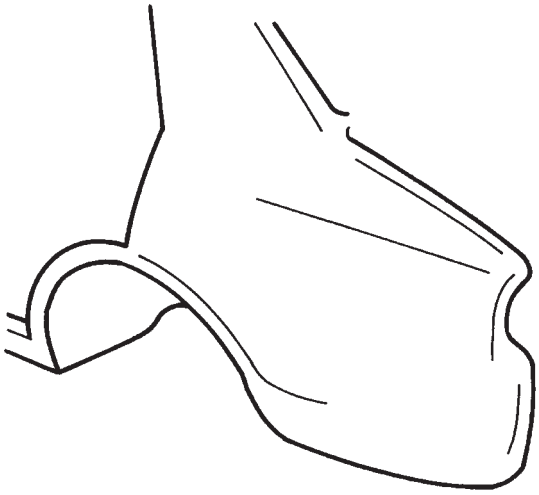
QUARTER SECTION

Assembly is serviced with quarter outer panel, quarter inner structure, wheelhouse, lock pillar and extensions. Time is to cut through the quarter and back glass openings in the sail panel and at the base of the dog/leg lock pillar area.

SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Adhesive application if required (all types)
- Back glass & reveal moldings
- Bolted-on extensions & fillers
- Carpet & insulation turn back
- Cutting & welding as necessary
- Door striker
- Fuel door
- Glass regulator assembly
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Interior moldings
- Parcel shelf
- Quarter trim
- Rear bumper assembly and/or cover R&I (if necessary)
- Rear lamp assemblies R&I
- Rear package tray trim
- Rear seat
- Remove & replace caulk/seam sealer
- Sill plates
- Stationary glass (unless noted)
- Trunk compartment trim
- Weatherstrips



DOES NOT INCLUDE:

- Antenna
- Body side moldings
- Carpet & insulation R&I
- Convertible top alignment (if applicable)
- Electrical wiring
- Emblems & nameplates
- Exhaust system
- Fuel tank
- Headliner
- Mud guard
- Power cylinder (if applicable)
- Rear suspension or axle
- Remove outer panel from replacement quarter assembly
- Retractable roof alignment (if applicable)
- Road wheel
- Roll bar (if applicable)
- Roof cover R&I or roll back
- Stripe tape, decals or overlays
- Trunk lid, lift gate or tail gate

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

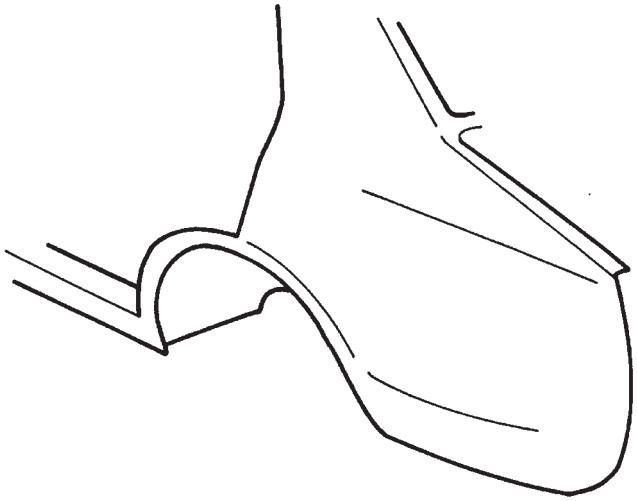
QUARTER PANEL & ROCKER SECTION

Assembly is serviced with quarter outer panel, quarter inner structure, wheelhouse, lock pillar and rocker outer & inner panels. Time is to cut through the quarter and back glass openings in the sail panel and to section in the rocker in the door opening. On four-door vehicles, time is to section rocker in the rear door opening up to the center pillar. Time includes the use of inserts (but not fabrication of inserts).

SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Adhesive application if required (all types)
- Back window & reveal moldings
- Bolted-on extensions & fillers
- Bumper assembly R&I (if necessary)
- Carpet & insulation turn back
- Cutting & welding as necessary
- Door striker
- Fuel door
- Glass
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Interior moldings
- Lamps
- Parcel shelf
- Quarter trim
- Rear package tray trim
- Rear seat
- Regulator
- Remove & replace caulk/seam sealer
- Seal strips & weatherstrips
- Sill plates
- Stationary glass R&I (unless noted)
- Tail lamp
- Trunk compartment trim



DOES NOT INCLUDE:

- Antenna
- Carpet & insulation R&I
- Door
- Electrical wiring
- Exhaust system
- Fuel tank
- Headliner
- Moldings
- Mud guard
- Rear suspension or axle
- Remove outer panel from replacement assembly
- Roof fabric cover R&I or pull back
- Stripe tape, decals or overlays

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

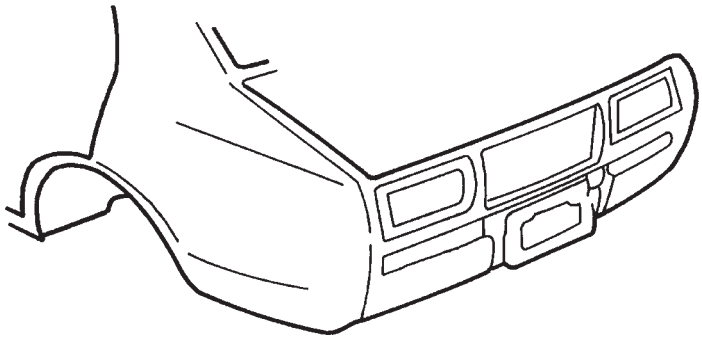
QUARTER AND LOWER BACK PANEL SECTION

Assembly is serviced with quarter outer panel, quarter inner structure, wheelhouse, lock pillar and lower back panel (below lid). Includes the use of inserts (but not the fabrication of the inserts). Time is to cut through the quarter and back glass openings in the sail panel and at the lower rear body seam on the opposite quarter.

SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Adhesive application if required (all types)
- Back window & reveal moldings
- Bolted-on extensions & fillers
- Bumper assembly R&I
- Carpet & insulation turn back
- Cutting & welding as necessary
- Door striker
- Fuel door
- Glass
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Interior moldings
- Lamp
- Parcel shelf
- Quarter trim
- Rear lamps
- Rear package tray trim
- Rear seat
- Rear compartment trim
- Regulator
- Remove & replace caulk/seam sealer
- Seal strips & weatherstrips
- Sill plates
- Stationary glass R&I (unless noted)
- Trunk lid, lift gate latch & lock cylinder R&I



DOES NOT INCLUDE:

- Antenna
- Carpet & insulation R&I
- Electrical wiring
- Emblems & nameplates
- Exhaust system
- Fuel tank
- Headliner
- Moldings
- Mud guard
- Rear bumper
- Rear suspension or axle
- Remove outer panel from replacement assembly
- Road wheel
- Roof fabric cover
- Spoilers & flares
- Stripe tape, decals or overlays
- Trunk lid, lift gate or tail gate

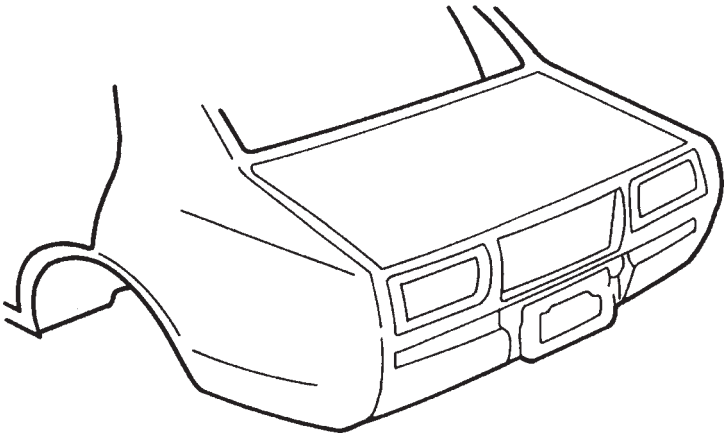
REAR BODY SECTION

Assembly is serviced with both quarters, lower rear body panel, inner structure and trunk lid/lift gate as a unit. Time is to cut through the quarter & back glass openings and across the floor pan in the door opening. Includes the use of inserts (but not the fabrication of inserts). On conventional framed vehicles, time includes R&I rear bumper and unbolting from the frame. On unitized vehicles, R&I of the rear bumper is not included.

SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Adhesive application if required (all types)
- Back Glass & reveal moldings
- Carpet & insulation turn back
- Cutting & welding as necessary
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Interior moldings
- Lamp
- Lift gate R&I
- Parcel shelf
- Quarter & interior trim
- Rear trunk compartment trim
- Rear package tray trim
- Rear bumper R&I (on conventional framed vehicles)
- Remove & replace caulk/seam sealer
- Seal strips & weatherstrips
- Seats (front & rear)
- Sill plates
- Trunk lid, lift gate lock cylinder R&I



DOES NOT INCLUDE:

- Antenna
- Brakes, adjust or bleed
- Carpet & insulation R&I
- Electrical wiring
- Emblems, moldings & nameplates
- Exhaust system
- Fuel tank
- Headliner
- Lines (fuel, brake & emission)
- Mud guards
- Passenger restraint systems
- Rear bumper (on unitized vehicles)
- Rear suspension or drive train
- Roof fabric cover
- Spoilers & flares
- Stripe tape, decals or overlays
- Trunk lid
- Wheel alignment

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

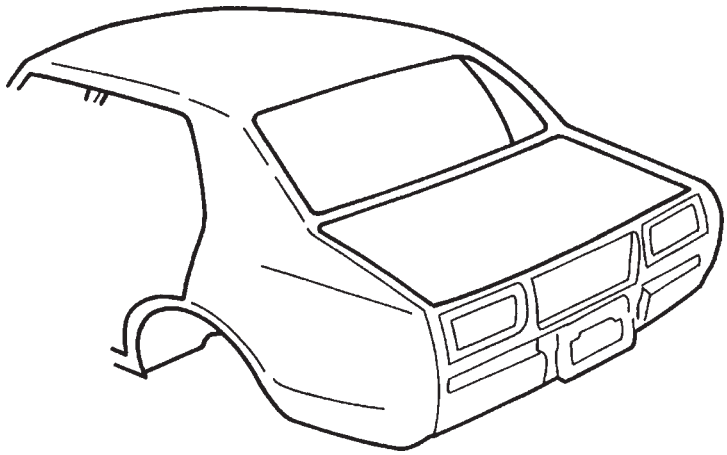
REAR BODY SECTION W/ROOF

Assembly is serviced with roof, both quarters, lower rear body panel, inner structure and trunk lid/lift gate as a unit. Time is to cut through the windshield opening and across the floor pan in the door opening. Includes the use of inserts as required (but not fabrication of inserts). On conventional framed vehicles, time includes R&I rear bumper and unbolting from the frame. On unitized vehicles, R&I of the rear bumper is not included.

SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Adhesive application if required (all types)
- Carpet & insulation R&I
- Cutting & welding as necessary
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Interior moldings
- Lamps
- Parcel shelf
- Quarter & interior trim
- Rear trunk compartment trim
- Rear package tray trim
- Rear bumper R&I (on conventional framed vehicles)
- Remove & replace caulk/seam sealer
- Seal strips & weatherstrips
- Seats (front & rear)
- Sill plates
- Trunk lid, lift gate lock cylinder R&I
- Windshield & reveal moldings



DOES NOT INCLUDE:

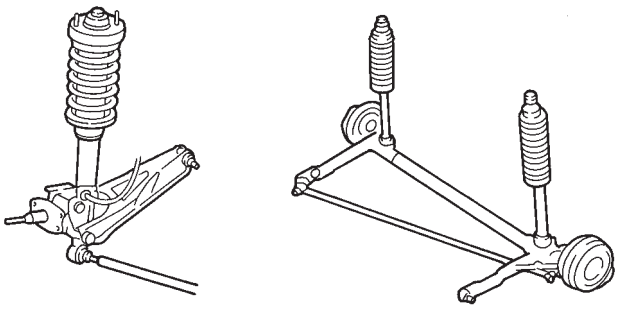
- Antenna
- Back glass & reveal moldings
- Brakes, adjust or bleed
- Electrical wiring
- Emblems, moldings & nameplates
- Exhaust system
- Fuel tank
- Headliner
- Lines (fuel, brake & emission)
- Mud guards
- Passenger restraint systems
- Rear bumper (on unitized vehicles)
- Rear suspension or drive train
- Roof fabric cover
- Spoilers & flares
- Stripe tape, decals or overlays
- Trunk lid, lift gate or tail gate
- Wheel alignment

REAR SUSPENSION ASSEMBLY R&I

This operation time is only to remove and re-install the rear suspension (on FWD vehicles with trailing or independent rear suspension) to facilitate access for other collision repair or replacement operations. Time does not include replacement or transfer of any parts of the assembly.

INCLUDED:
- Raise & support vehicle (one time)
- Remove & install as an assembly

DOES NOT INCLUDE:
- Brake calipers R&I
- Brake shoes or pads
- Brakes adjust or bleed
- Road test vehicle
- Road wheel
- Wheel cylinders
- Wheel alignment

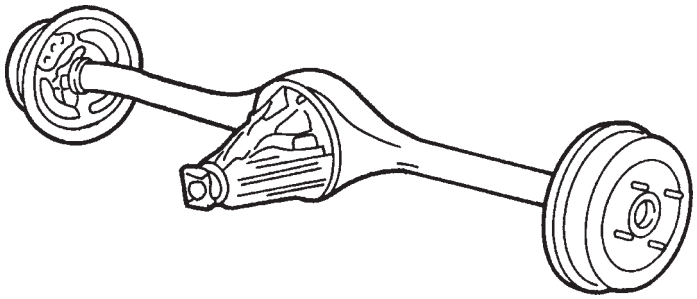


REAR AXLE HOUSING ASSEMBLY

Assembly is serviced with complete axle housing including backing plates. Time does not include replacement or transfer of any parts of the assembly.

INCLUDED:
- Raise & support vehicle (one time)
- Remove & install as an assembly

DOES NOT INCLUDE:
- Brake calipers
- Brake drums
- Brake fluid lines & cables
- Brake shoes or pads
- Brakes adjust or bleed
- Check & fill with oil
- Disassemble or inspect for wear
- Road test vehicle
- Road wheel
- Suspension control arms
- Wheel tracking check
- Wheel cylinders

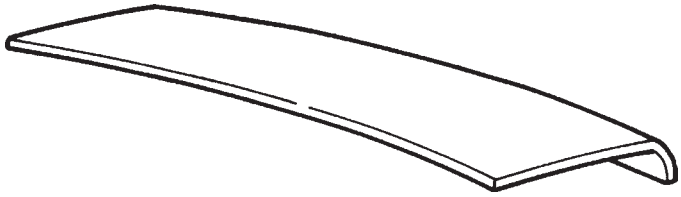


Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

TRUNK LID ASSEMBLY

SPECIAL NOTATION:
Disconnect at hinges (unless otherwise noted in text). In some applications, windshield glass & flush mounted reveal moldings may be unavoidably broken or damaged during normal R&I operations. Consider these factors and agree beforehand who will be responsible for charges for damage that may occur during repairs.

INCLUDED:
- Align to vehicle
- Lock cylinder R&I, if attached
- Remove & replace as an assembly
- Underside trim R&I

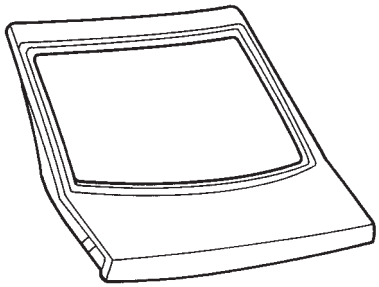


DOES NOT INCLUDE:
- Electrical wiring
- Emblems and nameplates
- Finish panel
- Hinge
- Lamps
- Latch
- License bracket
- Lock cylinder recoding
- Lock striker
- Moldings
- Remote release cable
- Remove useable parts from damaged trunk lid
- Spoiler and flares
- Stripe tape, decals or overlays
- Torsion rods, springs or shocks

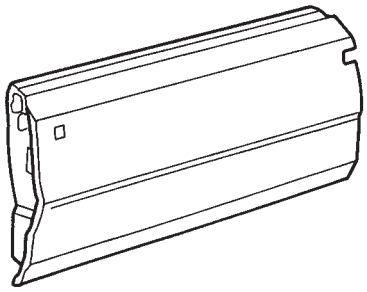
LIFT GATE & TAIL GATE

SPECIAL NOTATION:
Disconnect at hinges (unless otherwise noted in text).
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal R&I procedures on some applications. Consider these factors before performing glass operations in the event unavoidable damage occurs.

INCLUDED:
- Align to vehicle
- Finish panel
- Interior trim panel R&I
- Lock cylinder R&I, if attached
- Remove & replace as an assembly



DOES NOT INCLUDE:
- Electrical wiring
- Emblems and nameplates
- Glass
- Hinge
- Hold shock or prop
- Install new glass
- Lamps
- Latch
- License bracket
- Lock cylinder recoding
- Lock striker
- Moldings
- Regulator
- Spoiler
- Stripe tape, decals or overlays
- Weatherstrips

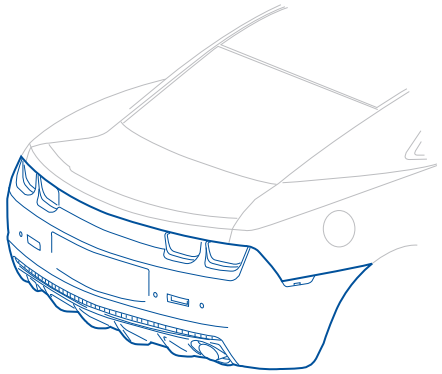


REAR BUMPER ASSEMBLY – R&R ALL TYPES

SPECIAL NOTATION:
Disconnect at energy absorber, mounting bracket, or frame mounting, whichever is most accessible.

INCLUDED:
- Align to vehicle
- Assembly R&R

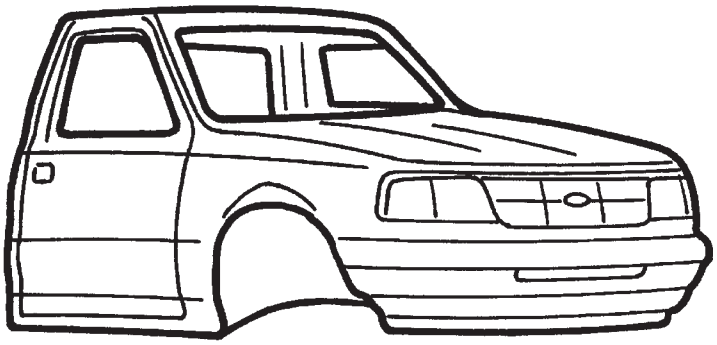
DOES NOT INCLUDE:
- Bumper brackets/frame rail extensions
- Electrical wiring
- Emblems & nameplate
- Energy absorber
- Lamps
- License bracket
- Molding & impact strips
- Reinforcement/impact bar
- Stripe tape, decals or overlays
- Valance panel/spoiler



PICKUP TRUCK - FRONT END SHEET METAL & CAB ASSEMBLY

Assembly is serviced with front outer sheet metal, welded front inner structure & cab as a unit. Time is to detach and replace from the frame. Time does not include replacement or transfer of any parts of the assembly.

INCLUDED:
- Align to frame & adjacent sheet metal
- Doors, R&I
- Front bumper R&I
- Interior trim
- Remove & replace damaged assembly from the frame
- Seats



DOES NOT INCLUDE:
- A/C condenser
- Aim headlamps
- Back glass
- Battery
- Bleed brake hydraulic system
- Brake booster/master cylinder
- Decals & stripes replace
- Disassemble front end sheet metal assembly
- Electrical wiring
- Headliner
- Heater & A/C components
- Instrument panel
- Pressure test & visually inspect radiator
- Radiator
- Recharge A/C system
- Steering column
- Wheel alignment
- Windshield & moldings

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

PICKUP TRUCK - COMPLETE CAB ASSEMBLY

Assembly is serviced with complete welded cab as a unit. Includes doors, windshield, side and back glass. Time is with front end sheet metal removed and rear pickup bed and/or equipment removed or pulled back.

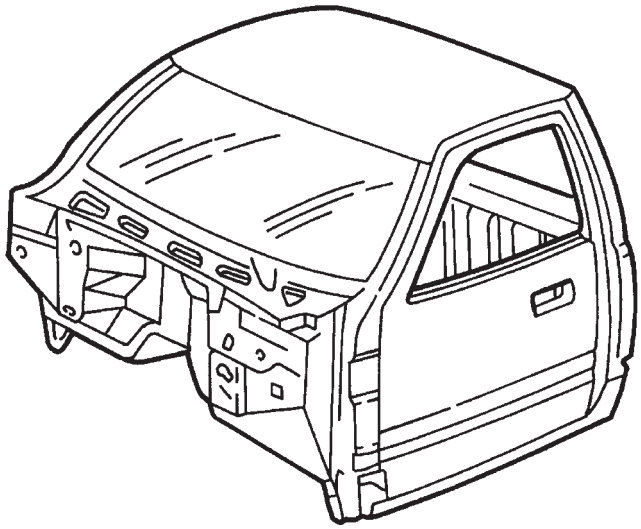
SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Cab assembly R&R
- Cables
- Carpet &insulation
- Interior trim (except headliner)
- Seats R&I

DOES NOT INCLUDE:

- Door assemblies
- Electrical wiring
- Emblems & nameplates
- Front end sheet metal
- Fuel tank
- Glass (windshield, door, side & back)
- Glass reveal moldings
- Headliner
- Instrument panel
- Lock cylinder recoding
- Mirror R&I
- Moldings
- Passenger restraint systems (seat belt type)
- Pickup box
- Remove usable parts from damaged cab
- Remove usable parts from damaged door
- Steering column
- Stripe tape, decals or overlays



PICKUP TRUCK - CAB CORNER & SIDE

Assembly is serviced with inner & outer rear cab corner/side panels and lock pillar. Time is with rear pickup bed and/or equipment removed or pulled back and includes the necessary use of inserts (but not fabrication of inserts).

SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:
- Adhesive application if required (all types)
- Carpet & insulation turn back
- Cutting & welding as necessary
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Rear Seats R&I (extended or crew cabs)
- Seats R&I (regular cab)
- Standard glass R&I

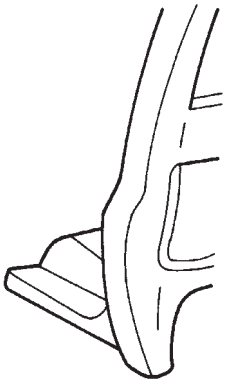
DOES NOT INCLUDE:
- Carpet & insulation R&I
- Electrical wiring
- Emblems & nameplates
- Fuel tank
- Headliner
- Insulation & trim
- Moldings
- Pickup box
- Seats
- Shoulder harness
- Stripe tape, decals or overlays

PICKUP TRUCK - CAB CORNER & SIDE W/ROCKER

Assembly is serviced with inner & outer rear cab corner/side panels, lock pillar and rocker panel. Time is with rear pickup bed and/or equipment removed or pulled back and to section rocker in the door opening. On four-door crew cab models, time is to section rocker in the rear door opening. Includes the necessary use of inserts (but not fabrication of inserts).

SPECIAL NOTATION:
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:
- Adhesive application if required (all types)
- Carpet & insulation turn back
- Cutting & welding as necessary
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Standard glass R&I



DOES NOT INCLUDE:
- Electrical wiring
- Emblems & nameplates
- Exhaust system
- Floor mats & seats
- Fuel tank
- Headliner
- Insulation & trim
- Moldings
- Pickup box set back or R&I

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

PICKUP TRUCK - CAB CORNER & SIDE W/ROCKER - Continued

- Seat R&I
- Shoulder harness R&I
- Stripe tape, decals or overlays

PICKUP TRUCK - BACK CAB SECTION

Assembly is serviced with floor, inner & outer back cab panels and lock pillars. Time is with rear pickup bed and/or equipment removed or pulled back. Time is to cut in the door openings across the floor and through the back glass and/or quarter glass openings just below the roof line. Includes the necessary use of inserts (but not fabrication of inserts).

SPECIAL NOTATION:

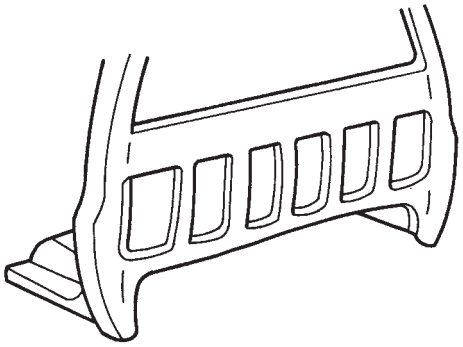
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Cutting & welding as necessary
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Standard glass R&I

DOES NOT INCLUDE:

- Carpet & insulation R&I
- Electrical wiring
- Emblems & nameplates
- Fuel tank
- Headliner
- Insulation & trim
- Moldings
- Pickup box set back or R&I
- Seats
- Shoulder harness
- Stripe tape, decals or overlays



PICKUP TRUCK - BACK CAB SECTION W/ROOF

Assembly is serviced with roof, floor, inner & outer back cab panels and lock pillars. Time is to cut in through the windshield pillars through the windshield opening and across the floor in the door openings. Includes the necessary use of inserts (but not fabrication of inserts). Time is with rear pickup bed and/or equipment removed or pulled back.

SPECIAL NOTATION:

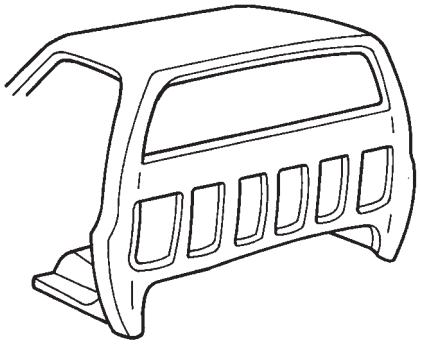
Glass, moldings, mounting studs or mounting flange may be damaged or broken during normal service procedures on some applications. MOTOR advises that these factors be considered before performing glass operations in the event unavoidable damage occurs. Time for the removal of old adhesive, clean and preparation of sealing surfaces (vehicle and/or glass) should be estimated after an on-the-spot evaluation.

INCLUDED:

- Cutting & welding as necessary
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Standard glass R&I

DOES NOT INCLUDE:

- Electrical wiring
- Emblems & nameplates
- Floor mats & seats
- Fuel tank
- Headliner



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PICKUP TRUCK - BACK CAB SECTION W/ROOF - Continued

- Insulation & trim
- Moldings
- Pickup box set back or R&I
- Seats
- Shoulder harness
- Stripe tape, decals or overlays

PICKUP TRUCK - BOX ASSEMBLY

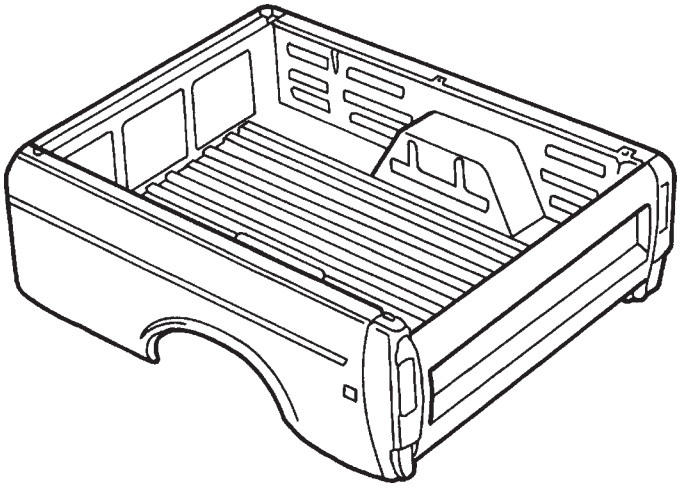
Assembly is serviced with tail gate, time is to replace as an assembly. Does not include transfer or R&R of any parts or equipment. Refinishing time for inside box is for color coat only and does not include any clean-up or repairs for rough inside box surfaces. Refinish time does not include under side of floor.

INCLUDED:

- Box R&R
- Bumper assembly R&I
- License plate bracket

DOES NOT INCLUDE:

- Accessory items
- Body side moldings
- Emblems & nameplates
- Fuel tank
- Lamps
- Mud flaps
- Rear fenders
- Stripe tape, decals or overlays
- Tailgate R&I



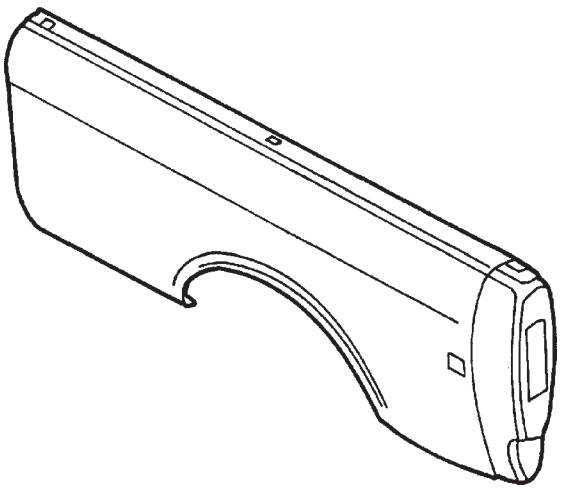
PICKUP TRUCK - BOX SIDE PANEL ASSEMBLY

INCLUDED:

- Adhesive application if required (all types)
- Bolted-on extensions & fillers
- Bumper assembly R&I
- Caulk/seam sealer
- Cutting & welding as necessary
- Fuel door
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Lamp
- License plate bracket

DOES NOT INCLUDE:

- Body side moldings
- Emblems & nameplates
- Fuel tank
- Outer fender
- Panels inward of side panel
- Pickup box set back or R&I
- Standard running boards & step plates
- Stripe tape, decals or overlays
- Tail gate



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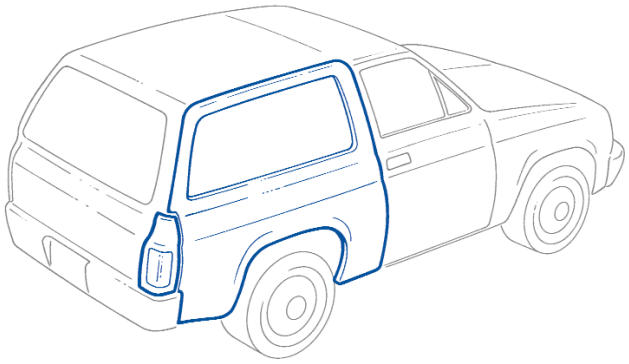
VAN/SUV - SIDE & CORNER PANELS

Assembly is serviced with side outer panel, inner structure, wheelhouse, lock pillar and extensions.

SPECIAL NOTATION:
Glass, moldings, mounting studs or flange may be damaged or broken during normal R&I procedures on some applications. Consider these factors before performing glass operations in the event unavoidable damage occurs.

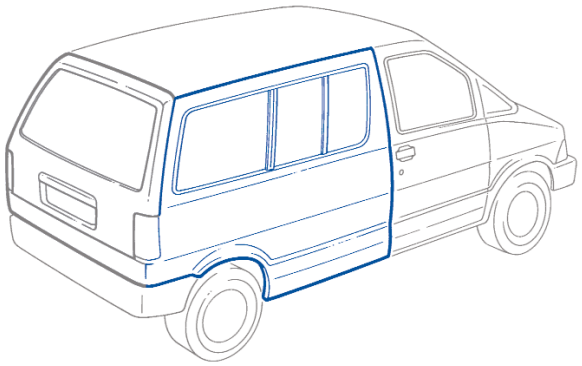
INCLUDED:

- Adhesive application if required (all types)
- Bolted-on extensions and fillers
- Bumper assembly R&I
- Carpet and insulation turn back
- Caulk/seam sealer
- Cutting and welding as necessary
- Detachable roof assemblies
- Door striker
- Fuel door
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Lamp
- Side glass and moldings
- Sill plates
- Weatherstrips & seals



DOES NOT INCLUDE:

- ABS Sensor
- Air bag components
- Body side moldings
- Brackets, braces & supports transfer
- Carpet & insulation
- Doors R&I (if necessary)
- Electrical wiring
- Emblems & nameplates
- Exhaust system
- Fuel tank
- Headliner
- Mud guard
- Rear suspension or axle
- Remove outer panel from replacement assembly
- Seats and interior trim
- Spare tire carrier
- Stripe tape, decals or overlays
- SUV rear hinged door
- Tail gate/lift gate
- Van sliding door
- Window (aftermarket)



PICKUP TRUCK - BOX TAIL GATE

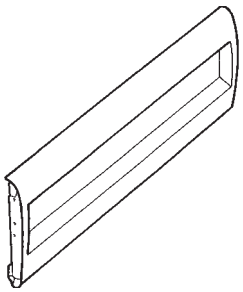
SPECIAL NOTATION:
Time is to disconnect at the hinges.

INCLUDED:

- R&R as an assembly
- Align to vehicle

DOES NOT INCLUDE:

- Body side moldings
- Emblems & nameplates
- Hinge (welded type)
- Stripe tape, decals or overlays



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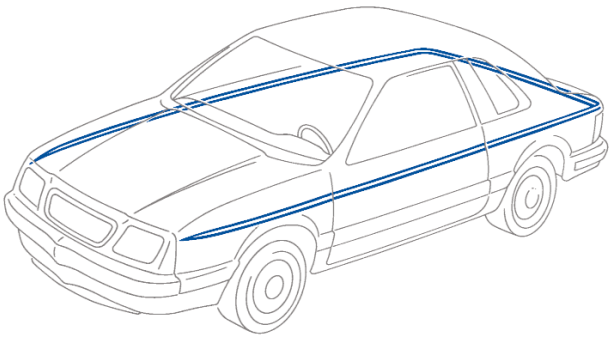
DECALS, STRIPE TAPE & OVERLAYS

INCLUDED:
- Clean/heat surfaces
- Component align/position
- Installation of component only

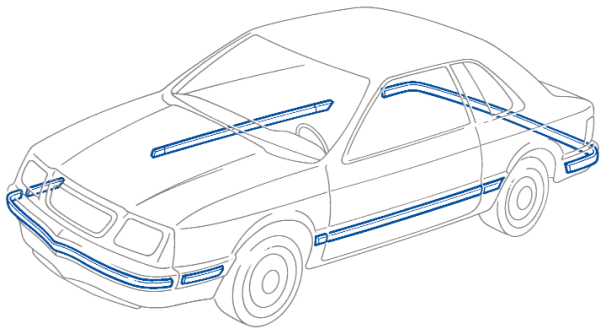
DOES NOT INCLUDE:
- Adhesive backing removal, clean up and replace
- Damage panel repair
- Door hardware



ADHESIVE TYPE MOLDINGS, NAMEPLATES & EMBLEMS

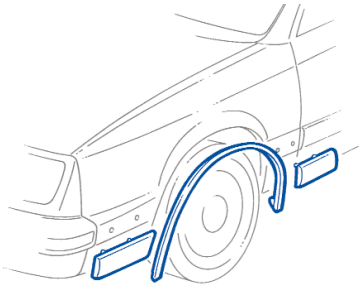
INCLUDED:
- Clean/heat surfaces
- Component align/position
- Installation of component only

DOES NOT INCLUDE:
- Adhesive backing removal, clean up and replace
- Damage panel repair
- Door hardware



BOLT OR CLIP-ON MOLDINGS

CONSIDERED:
- If new moldings are installed on the replacement panel, add drilling time and one half the published R&R time
- If original moldings are removed then installed on the replacement panel, add drilling time and the entire published R&R time

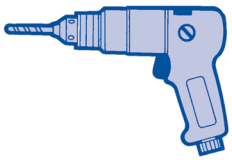


DRILLING OPERATIONS

Replacement components may be inconsistently delivered with or without mounting holes drilled. Drilling time should be added to the estimate if a component is received without mounting holes pre-drilled.

Time to drill holes is listed in parentheses next to part description. A time of (d.2) indicates 0.2 for drilling, and this time should be added to the estimate when it is determined a drilling operation is required. Time shown is for round holes only. Estimate time accordingly if holes must be a shape other than round.

CONSIDERED:
- If new moldings are installed on the replacement panel, add drilling time and one half the published R&R time
- If original moldings are removed then installed on the replacement panel, add drilling time and the entire published R&R time



Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

REFINISH TIME LISTINGS

All refinish times are listed in hours and tenths of an hour. A time in parenthesis adjacent to the part name, such as (p3.5) indicates three and one half hours. Replacement operation time does not include time necessary to refinish the component.

Operation times for the application of painted on stripes are not covered in this publication. The time necessary to perform this type of operation should be estimated after an on-the-spot evaluation of required procedure.

REFINISH TIME PREMISE

Published refinish times are for one color applied to new undamaged replacement components, without exterior trim, interior trim or other attached components and applied in one continuous process. For damaged panel(s), published refinish times may be applied after the damaged panel has been returned to a NEW UNDAMAGED condition.

Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces, nor do they include time which may be required to correct finish imperfections caused by improper weather conditions, application, or environmental contamination such as dust, dirt, grease, etc. MOTOR advises all parties consider these factors beforehand to determine mutually acceptable provisions in the event such conditions exist or occur.

ANTI-THEFT LABELS (R DOT)

Replacement part labels are coded with the letter “R” to show that it is a replacement part. R Dot labels should not be removed from the part. Use caution when refinishing, rustproofing or undercoating replacement components to avoid damaging the label.

BUMPER COVERS AND OTHER FLEXIBLE COMPONENTS

Refinish times listed on the operation detail line for these items are based on the items being refinished prior to installation. It includes exterior surface and edges refinished during one continuous process. Masking the black grained, textured, or non-body color portions in preparation for body color application is an included operation. If a separate edging procedure is utilized then the appropriate time should be estimated after an on-the-spot evaluation.

DOOR SHELLS, LIFT GATES AND TAIL GATES

Refinish times listed on the parts detail line for these components include exterior surface, edges and interior sides unless otherwise noted in text.

Refinish times listed under the "Refinishing Notes" heading for "door outer panel only" operations do not include time for refinishing the door frame edge or interior side. Where possible, MOTOR will publish time for those areas under a "Refinishing Notes" heading within that group.

FENDERS, HOODS, TRUNK LIDS AND OTHER MAJOR BOLTED PANELS

Refinish times listed on the parts detail line for these new panels do not include time for refinishing the edge or underside. Where possible, MOTOR will publish time for those areas under a “Refinishing Notes” heading within that group.

QUARTER PANELS AND OTHER MAJOR WELDED PANELS

Refinish times listed on the parts detail line for these new panels include exterior side, recessed edges, gutters and pockets, unless otherwise noted in text.

Refinish times listed under the “Refinishing Notes” heading for quarter panels or other major welded panels “exterior surface only” operations do not include time for refinishing recessed edges, gutters and pockets. Where possible, MOTOR will publish time for these areas under the “Refinishing Notes” heading within that group.

NEW UNDAMAGED PANEL

A component manufactured to the same exacting standards as the parts installed on new vehicles when the car was built. Exterior body panels are supplied with a smooth painted surface (e-coat).

UNDERSIDE COLORS

Refinish times presented in this guide are developed under the premise that the underside and jamb color is the same as the exterior body color. Some vehicle manufacturers use a different color for the engine compartment, trunk compartment and/or jambs. An additional paint mix is required if the underside and/or jamb color is a different color than the exterior body color. Clear coat (gloss or matte) will be required for base color coat applications. This should be considered when developing the estimate.

PRIME & BLOCK

Prime & block (high build/primer-filler) is a required procedure that restores a repaired panel surface, including the joined areas of replaced welded panels, from 150-grit finish to NEW UNDAMAGED condition. It is MOTOR’s position that prime and block is a process best reserved for the judgment of an estimator/appraiser following a thorough on-the-spot evaluation of the specific vehicle and damage in question.

REFINISH TIME PREMISE - Continued

REPAIRED PANEL REFINISHING

MOTOR suggests using component(s) base refinish time for this type of procedure after the damaged panel is repaired to new undamaged condition. Repaired surface preparation requires an on-the-spot evaluation for additional procedural steps such as featheredge and/or prime and block not required for new undamaged panels.

PARTIAL PANEL REFINISHING

This is NOT a BLEND-WITHIN procedure; partial panel refinishing is NOT a BLEND operation. MOTOR defines partial panel refinishing as refinishing a body panel with damage that is contained within a defined border or underneath body cladding after the panel has been repaired to that of a "NEW UNDAMAGED PANEL." It is MOTOR's position that partial panel refinishing is a process best reserved for the judgment of an estimator/appraiser following a thorough on-the-spot evaluation of the specific vehicle and refinish requirements in question. Refer to G.T.E. "BASIC COLOR COAT APPLICATION."

SPECIAL NOTATION:

The items or operations below were not considered during the development of any published basic refinish operation times. These operations may or may not be required depending upon the vehicle or process used. If any of these items or operations are required, they should be considered by the estimator and added to the estimate if necessary.

REFINISH, WET/DRY SAND, DE-NIB AND/OR RUB-OUT TIME DOES NOT INCLUDE:

- Anti-corrosion material application
- Filling, blocking, featheredging repaired panels
- Flex additive mixing time
- Flex prep application
- Material costs
- Mask inner panels ex: apron/cowl/pillars/rail/floor, etc.
- Molding & ornamentation
- Protective coating material application
- Protective coating removal
- Sound deadening application
- Spatter paint application time
- Stripe tape, decal & overlay
- Waste disposal fees (all types)

PANEL and/or COMPONENT DESIGNATION

MAJOR PANELS/COMPONENTS

All panels or components with a base refinish time of 1.0 hour or greater are generally considered by MOTOR to be major panels. Example: grille header panel, fender, hood, cowl top panel, doors, roof panel, rocker panel, quarter panel, engine lid, trunk lid, lift gate, rear gate, rear body panel, truck cab corner and back panel, truck bed front and side panel and van side and corner panels.

MINOR PANELS/COMPONENTS

All panels or components with a base refinish time of less than 1.0 hour.

FLEXIBLE PANELS/COMPONENTS

All panels or components for which paint systems require a flex agent added to the paint mix. Example: fascia covers, fillers, extensions, spoilers, etc.

No overlap deduction should be taken when calculating refinish time for a single item from this category.

A combination of items from this category refinished during a single, continuous procedure should be subject to the appropriate "Adjacent" or "Non-Adjacent" overlap formula deduction.

When a flex agent or a separate paint mix procedure is not required and when the flexible component is refinished during the same procedure with major or minor components, then flexible components should be considered the same designation as major or minor components for the purpose of calculating refinish overlap deductions and/or multi-stage refinishing additions.

INDIVIDUAL PROCEDURE ITEMS/AREAS

Areas of a panel or component that are part of a main component, but are refinished during a procedure separate from the main component. Example: edges, jambs, hinges, inside panels and the underside of hoods, deck lids, liftgates, etc. No overlap deduction should be taken when calculating refinish time for items from this category.

DEDUCTIONS TO BASIC REFINISH TIMES (Refinish Overlap)

OVERLAP NON-ADJACENT PARTS:

- First major panel:
  – Use full published time
- Each additional part:
  – Deduct 0.2 per part

OVERLAP ADJACENT PARTS:

- First major panel:
  – Use full published time
- Each additional part with a base time of 1.0 hour or greater:
  – Deduct 0.4 per part
- Each additional part with a base time less than 1.0 hour:
  – Deduct 0.2 per part.

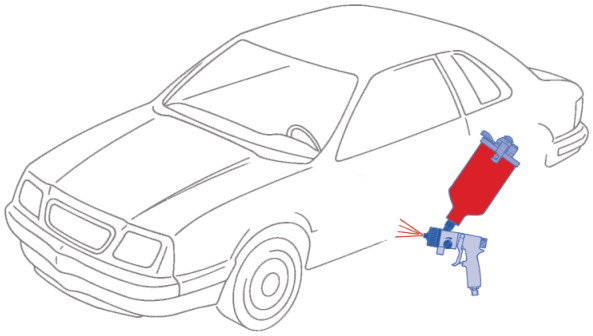
OVERLAP INNER PANEL COMPONENTS:

- First Inner Part:
  – Use full published time.
- Each additional part with a base time of 0.5 hour or greater:
  – Deduct 0.2 per part.
- Inner part with a base time less than 0.5 hour:
  – No deduct.

BASIC COLOR COAT APPLICATION

INCLUDED:

- Back tape opening (handle, lock, cylinder, mirror)
- Clean component (solvent wash)
- Clean sprayer
- Color coat application
- Initial dry sand (as recommended by paint manufacturer)
- Light buff, lacquer paint only
- Load sprayer
- Mask adjacent panels (three foot perimeter)
- Mask/close gap between adjacent panels up to foam tape (overspray)
- Mask glass openings
- Mix paint (color and necessary solvents)
- Primer-Sealer coat application
- Primer-Sealer coat final clean
- Primer-Sealer coat final application
- Remove masking
- Retrieve accurate color information including paint chip



DOES NOT INCLUDE:

- Adhesion promoter (unprimed flexible component)
- Backside refinishing
- Blending into adjacent panels
- Color matching to adjacent panels
- Cover mask engine/compartment to prevent overspray
- Cover/mask entire exterior of vehicle to prevent overspray damage
- Cover/mask for prime and block
- Cover/mask for cut-in
- Cover/mask recessed edges/jambs/weatherstrips
- Cover/mask trunk /compartment to prevent overspray
- Cover mask interior of vehicle to prevent overspray damage
- Edge refinishing
- Grind, fill & smooth welded seams (up to 150 grit sandpaper)
- Paint or material costs
- Prime & block (high build/primer-filler)

BASIC COLOR COAT APPLICATION - Continued

DOES NOT INCLUDE (Continued):
- Test spray-out panel
- Tinting Primer-Sealer
- Tinting to achieve color match
- Underside refinishing
- Weld, grind or sanding damage to adjacent panels
- Wet sanding

BAGGING (Cover Entire Vehicle Exterior)

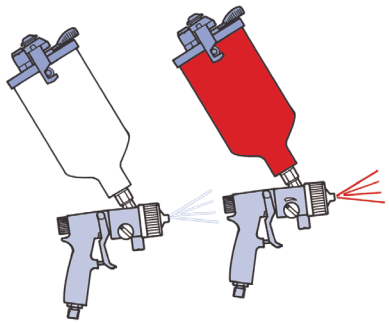
Published refinish times include time necessary to mask exterior surface adjacent to the refinish area to a perimeter of 36 inches, or 3 feet. When the process of perimeter masking is substituted for an entire vehicle bagging procedure, then no additional time should be added. If entire vehicle bagging is used along with perimeter masking, then the following formula may be considered:

APPLY AND REMOVE VEHICLE COVER (BAGGING)
- Add 0.2 each time a cover is applied and removed

CLEAR COAT FINISHES (Base Coat/Clear Coat)

SPECIAL NOTATION:
The following items or operations were not considered during the development of any published basic refinish operation times. If any of these items or operations are required, they should be considered by the estimator. Calculations should be made after deductions for overlap and additions for underside and edges, if required.

- First major panel:
  – Add 40% to refinish time
- Each additional panel:
  – Add 20% to refinish time
- Maximum time allocation:
  – 2.5 hours



INCLUDED:
- All components clear coated during a single, continuous procedure
- Apply clear coat
- Clean sprayer (one time)
- Mix clear coat (one time)
- Tack wipe surface (when required)

DOES NOT INCLUDE:
- Any component clear coated as a separate procedure
- Any operation previously excluded in Refinish time Premise and/or Basic Color Coat Applications groups
- Material costs

THREE STAGE FINISHES (Base/Mica/Clear Coat)

SPECIAL NOTATION:
The following items or operations were not considered during the development of any published basic refinish operation times. If any of these items or operations are required, they should be considered by the estimator. Calculations should be made after deduction for overlap and additions for underside and edges, if required (if three stage finish from factory).

- First major panel:
  – Add 70% to refinish time
- Each additional panel:
  – Add 40% to refinish time

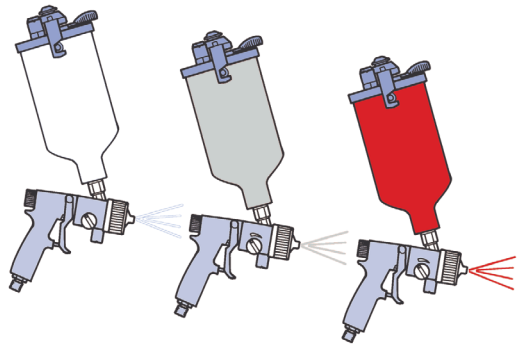
THREE STAGE FINISHES (Base/Mica/Clear Coat) - Continued

INCLUDED:

- Back tape opening (handle, lock, cylinder, mirror)
- Mask/close gap between adjacent panels up to foam tape (overspray)
- Mask glass opening
- Mask/protect grille radiator opening (overspray)
- Retrieve accurate color information, including paint chips

DOES NOT INCLUDE:

- Any component clear coated as a separate procedure
- Any operation previously excluded in "Refinish Time Premise" and/or "Basic Color Coat Application" groups
- Material costs
- Test spray-out panel



CLEAR COAT UNDAMAGED PANEL

SPECIAL NOTATION:

Calculations for clear coating an undamaged panel are based upon the outer surface only and should not include additions for underside, inside, or edges of the clear-coated panel. There should be no overlap deduction between refinished or clear-coated panel(s), nor should this procedure be applied towards the maximum clear coat allocation. Clear coating may be necessary for adjacent body panel(s) to nearest break point (see G7). The following formula may be considered in the event this type of procedure is required on an undamaged panel:

- Each clear coated panel(s):
  – 40% of panel's Base Refinish Time.

INCLUDED:

- Back tape opening (handle, lock cylinder, mirror)
- Bonding/adhesion coat application (if required)
- Clear coat application
- Clean component (solvent/detergent wash)
- Clean in preparation for material application
- Initial wet sand or scuff
- Mask adjacent panels (three foot perimeter)
- Mask/close gap between adjacent panels up to foam tape (overspray)
- Mask glass opening
- Mask/protect grille radiator opening (overspray)
- Remove masking
- Tack wipe surface (when required)

DOES NOT INCLUDE:

- Correction of pre-existent surface imperfections
- Damage repair
- De-nib/wet sand and/or buff for polishing
- Masking of attached parts
- Material costs
- R&I of attached parts

COLOR BLENDING (Adjacent Panel [s])

SPECIAL NOTATION:
Calculations for blending are based upon the outer surface only and should not include additions for underside, inside or edges of the blend panel. There should be no overlap deduction between blend panel(s) and/or refinished panel(s). This formula is not applicable to single-stage, 3-stage, 4-stage or two-tone type finishes. Finishes of this type should be negotiated after an on-the-spot evaluation. Estimation of material cost should be based upon the full blended panel(s).
Blending may be necessary for adjacent body components to avoid noticeable color variation between newly applied paint and the existing paint of adjacent components or areas. The following formula may be considered in the event this type of procedure is required on an undamaged panel:

- Each blended adjacent panel or area:
  – 50% of blend panels base refinish time

INCLUDED:

- Back tape opening (handle, lock cylinder, mirror)
- Blend coat application
- Bonding/adhesion coat application
- Clean component (solvent/detergent wash)
- Clean in preparation for material application
- Clear Coat application (full blend panel if required)
- Initial wet sand or scuff (when required)
- Mask adjacent panels (three foot perimeter)
- Mask/close gap between adjacent panels up to foam tape (overspray)
- Mask glass opening
- Mask/protect grille radiator opening (overspray)
- Remove masking

DOES NOT INCLUDE:

- Correction of pre-existent surface imperfections
- Cover/mask recessed edges/jambs/weatherstrips
- Damage repair
- Masking of attached parts
- Material costs
- R&I of attached parts
- Wet sand and/or buff for polishing

EDGES OF REPLACEMENT PARTS (Edging)

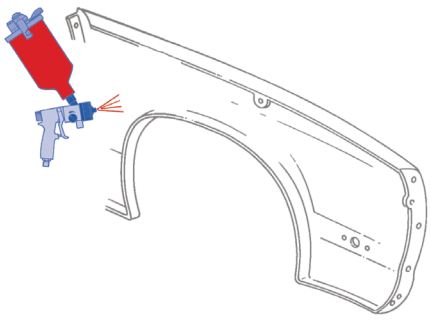
SPECIAL NOTATION:
The following items or operations were not considered during the development of any published basic refinish operation times. If any of these items or operations are required, they should be considered by the estimator. An additional paint mix is required if the edge color is a different color than the exterior body color. Clear coat (gloss or matte) will be required for base color coat applications.

INCLUDED:

- Refer to specific parts text for estimated time allowance
- Use full refinishing time without deduction for overlap

DOES NOT INCLUDE:

- Clear coat
- Color tinting
- Mixing a different edge color



Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

THREE STAGE COLOR BLEND (Adjacent Panels)

SPECIAL NOTATION:
Calculations for blending are based upon the outer surface only and should not include additions for underside, inside, or edges of blend panel. There should be no overlap deductions between blend panel(s) refinish time. Blending may be necessary for adjacent body components to avoid noticeable color variation between newly applied paint and the existing paint of adjacent components or areas. The following formula may be considered in the event this type of procedure is required on an undamaged panel.

- Each blended adjacent panel or area:
  – 70% of panel's base refinish time

INCLUDED:

- Back tape opening (handle, lock cylinder, mirror)
- Blend coat application
- Bonding/adhesion coat application
- Clean component (solvent/detergent wash)
- Clean in preparation for material application
- Clear coat application (full blend panel if required)
- Panel preparation (when required)
- Mask adjacent panels (3 foot perimeter)
- Mask/close gap between adjacent panels up to foam tape (over spray)
- Mask glass opening
- Mask/protect grille radiator opening (over spray)
- Remove masking

DOES NOT INCLUDE:

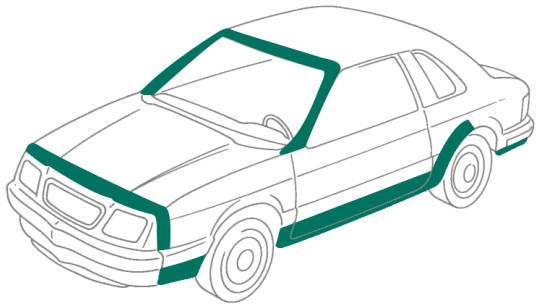
- Correction of pre-existent surface imperfections
- Cover/mask recessed edges/jambs
- Damage repair
- Masking of attached parts
- Material costs
- R&I of attached parts
- Wet sand and/or buff for polishing
- Test spray-out panel

STONE CHIP GUARD (Protective Material)

SPECIAL NOTATION:
The following items or operations were not considered during the development of any published basic refinish operation times. If any of these items or operations are required, they should be considered by the estimator.

- First panel:
  – Add 0.5 per panel

- Each additional panel:
  – Add 0.3 per panel



INCLUDED:

- Up to a 12" height

DOES NOTINCLUDE:

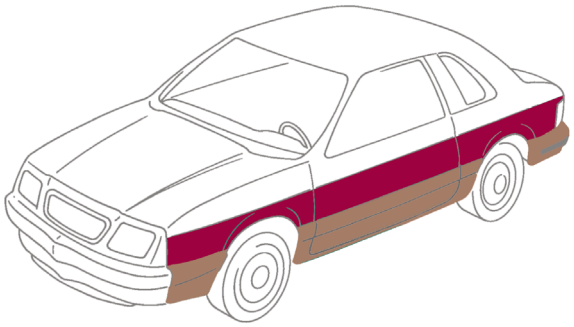
- Texture matching

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

TWO TONE REFINISHING (Second Color Tone Application)

SPECIAL NOTATION:
The following items or operations were not considered during the development of any published basic refinish operation times. If any of these items or operations are required on exterior, interior or undersides, they should be considered by the estimator. The following formula may be superseded by information published in specific parts text. Calculations should be made after deductions for overlap, and additions for edges if required.

- First panel:
  – Add 40% to refinish time
- Each additional panel:
  – Add 30% to refinish time



UNDERSIDE OF HOODS, LIDS OR GATES

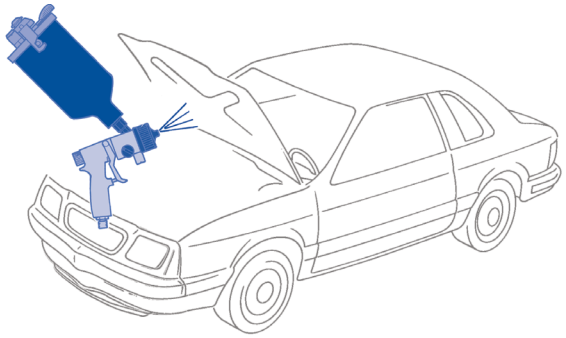
SPECIAL NOTATION:
The following items or operations were not considered during the development of any published basic refinish operation times. If any of these items or operations are required, they should be considered by the estimator. An additional paint mix is required if the underside color is a different color than the exterior body color. Clear coat (gloss or matte) will be required for base color coat applications.

INCLUDED:

- Refer to specific parts text for estimated time allowance
- Use full refinishing time without deduction for overlap

DOES NOT INCLUDE:

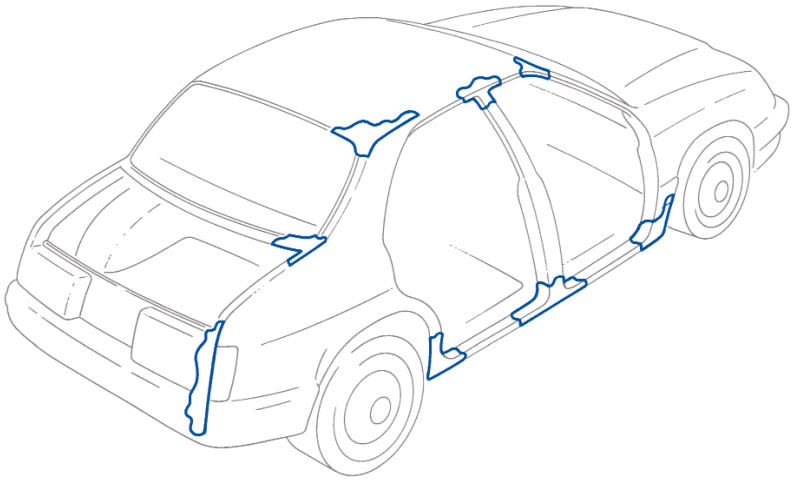
- Clear coat
- Color tinting
- Mixing a different underside color



Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

WELD ZONE/ADJACENT PANELS

SPECIAL NOTATION:
Suggested refinish operation times do not include additional time for repair of damage to adjacent panels resulting from normal cutting, welding and grinding procedures. The amount of damage can vary considerably depending upon process and technique used by the servicing technician, and therefore is impractical to anticipate in this publication. MOTOR recommends these factors be considered before finalizing any repair cost estimate. Typical areas to be considered are illustrated below.



DE-NIB & POLISH

SPECIAL NOTATION:
Refinished panels may or may not require a varying amount of de-nibbing, a process used to remove small particles in final finish surface. The clear coat contains ultraviolet screeners and reducing the clear coat thickness (mils) may result in early paint failure. Follow vehicle manufacturer's recommendations when performing this type of repairs. Calculations should be based upon the base refinish time outer surface only and should not include additions for clear coat, underside, inside or edges. In the event that this type of operation will be performed, MOTOR suggests the following formula be considered:

- Each panel requiring wet sand, rub-out and/or buff (refinish or blend):
  HOOD, ROOF, TRUNK LID, SPOILER
  First panel add up to 20% of full base refinish time, each additional panel add up to 10%
  FENDER, DOOR, QUARTER PANEL, BUMPER COVER
  First panel add up to 10% of full base refinish time, each additional panel add up to 5%

INCLUDED:
- Panel outer surface only
- Paint nib removal as required (spot only)
- Spot polish only

DOES NOT INCLUDE:
- Acid rain damage
- Full panel polish
- Overspray removal
- Removal of residual material from recessed edges and jambs if required
- Scratch damage
- Wash, clean, wax, or detail entire vehicle prior to delivery if required
- Wet sand full panel

WET/DRY SAND, RUB-OUT & BUFF

SPECIAL NOTATION:

Refinished panels may or may not require a varying amount of wet sanding, compound rub-out, or buffing operations in order to match original finish texture. The clear coat contains ultraviolet screeners and reducing the clear coat thickness (mils) may result in early paint failure. Follow manufacturer's recommendations when performing this type of repairs. Calculations should be based upon the outer surface only and should not include additions for clear coat, underside, inside or edges. Base refinish time does not include deduction for refinish overlap. In the event that this type of operation will be performed, MOTOR suggests the following formula be considered:

- Each panel requiring wet sand, rub-out and/or buff (refinish or blend):
  Add 30% of full base refinish time

INCLUDED:

- Compound, buff and/or polish as required
- Panel outer surface only
- Wet sand full panel as required

DOES NOT INCLUDE:

- Acid rain damage
- Overspray removal
- Removal of residual material from recessed edges and jambs if required
- Wash, clean, wax, or detail entire vehicle prior to delivery if required

Code for Plastic Parts

HANDLING PRECAUTIONS

1. The repair procedure for plastic body parts must conform with the type of plastic material.
2. Plastic body parts are identified by the codes in the following chart.
3. When repairing metal body parts adjoining plastic body parts (by brazing, frame cutting, welding, painting, etc.), consideration must be give to the property of the plastic.

CODE	MATERIAL NAME	HEATING RESISTING TEMP °C (°F)	RESISTANCE TO ALCOHOL OR GASOLINE	NOTES
AAS	Acrylonitrile Acrylic Rubber Styrene & Resin	80 (176)	Alcohol is harmless if applied only for short time in small amounts (ex., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
ABS	Acrylonitrile Butadiene Styrene & Resin	80 (176)	Alcohol is harmless if applied only for short time in small amounts (ex., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
AES	Acrylonitrile Ethylene Rubber Styrene & Resin	80 (176)	Alcohol is harmless if applied only for short time in small amounts (ex., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
EPDM	Ethylene Propylene Rubber	100 (212)	Alcohol is harmless if applied only for short time in small amounts.	Most solvents are harmless but avoid dipping in gasoline, solvents, etc.
PA	Polyamide (Nylon)	80 (176)	Alcohol and gasoline are harmless.	Avoid battery acid.
PC	Polycarbonate	129 (248)	Alcohol is harmless.	Avoid gasoline, brake fluid, wax, wax removers and organic solvents.
PE	Polethylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
POM	Polyoxymethylene (Polyacetal)	100 (212)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PP	Polypropylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PPO	Modified Polyphenylene & Oxide	100 (212)	Alcohol is harmless.	Gasoline is harmless if applied only for quick wiping to remove grease.
PS	Polystyrene	60 (140)	Alcohol and gasoline are harmless if applied only for short time in small amounts.	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
PUR	Thermosetting Polyurethane	80 (176)	Alcohol is harmless if applied only for short time in small amounts (ex., quick wiping to remove grease).	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
PVC	Polyvinylchloride (Vinyl)	80 (176)	Alcohol is harmless if applied only for short time in small amounts (ex., quick wiping to remove grease).	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
PMMA	Polymethyl Methacrylate	80 (176)	Alcohol is harmless if applied only for short time in small amounts.	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
SAN	Styrene Acrylonitrile Resin	80 (176)	Alcohol is harmless if applied only for short time in small amounts.	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
SMC	Sheet Moulding Compound	180 (356)	Alcohol and gasoline are harmless.	Avoid Alkali.
TPO	Thermoplastic Olefine	80 (176)	Alcohol is harmless if applied only for short time in small amounts.	Most solvents are harmless but avoid dipping or immersing in alcohol, gasoline, solvents, etc.
TPU	Thermoplastic Polyurethane	80 (176)	Alcohol is harmless if applied only for short time in small amounts (ex., quick wiping to remove grease).	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
UP	Unsaturated Polyester	110 (233)	Alcohol and gasoline are harmless	Avoid Alkali.

**Temperature higher than those listed here may result in material deformation during repair.*

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